

we enable efficient production of concrete elements

# BEST IOT STARTUP

University of Southern Denmark

Nordic Startup Awards  
Danish National Final

Registration and Networking  
Opening and Introduction

- AWARD: Best Newcomer
- AWARD: Best Officespace
- AWARD: Best Investment Company
- AWARD: Startup Media of the Year
- AWARD: Best Accelerator
- AWARD: Best Bootstrapped
- AWARD: Best IoT Startup

Established

Prototype development

Launch Series 0

2000 units shipped

Launch of Maturix

sensohive

2013

2014

2015

2016

2017

2018



# Arrhenius-Formel

$$k = Ae^{-E_a/(RT)}$$

Diagram illustrating the Arrhenius equation with labels and arrows pointing to the variables:

- Rate Constant ( $k$ )
- Frequency Factor ( $A$ ) (L/(mol·s))
- Energy of Activation ( $E_a$ ) (kJ)
- Gas Constant ( $R$ )
- Absolute temperature ( $T$ ) (K)



Svante August Arrhenius  
19 February 1859  
Wik Castle, Sweden

# Orbit K

by Sensohive



**Internet of Things**

Track 1: Produced yesterday  
**Service Organisation**

Track 2: ETA 3 hours 20 min

**Data-driven decisions**

**Custom/Client Made**

# Industry 4.0

**3D Print**

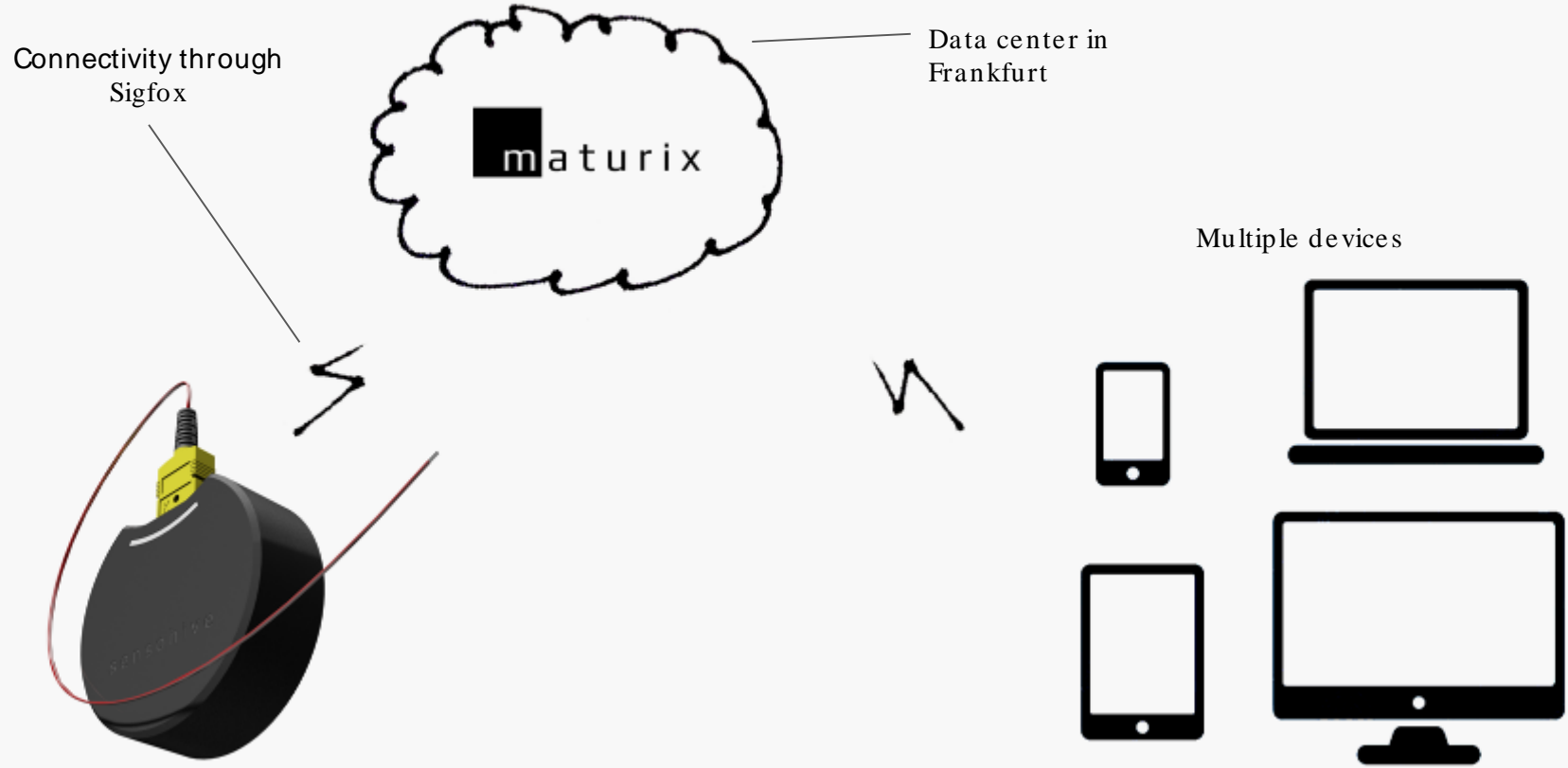
**Machine Learning**

**Robotics**

**Automation**

Track 4: Casting in progress

# IoT Infrastructure



# Orbit K



Cold junction designed  
for Type K thermocouple

Sigfox Antenna with a  
transmitting range of  
+20km

Lithium Primary Batteries  
providing up to 10 years of  
life\*

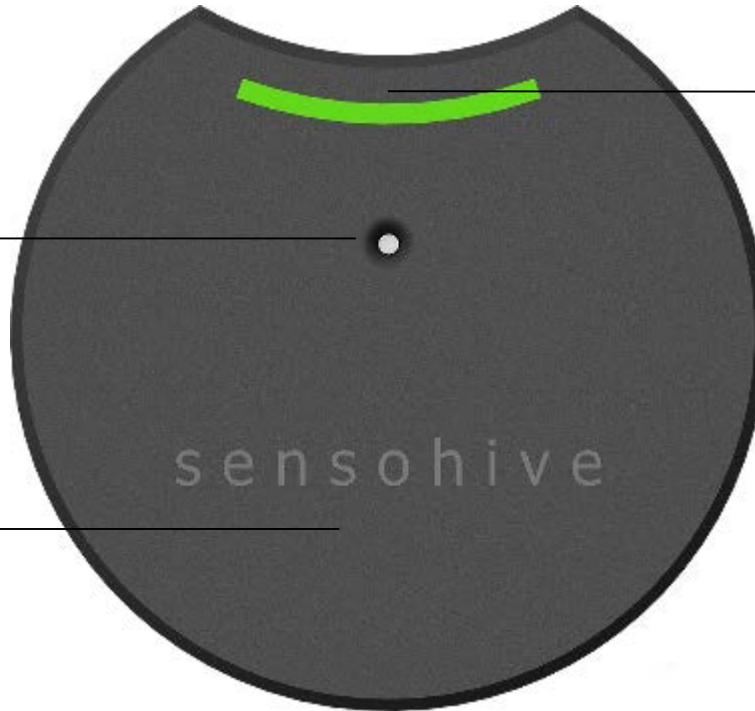
\* Battery life depends on mode, operating temperature, and frequency of measurements and transmissions. This is an estimate based on tests and simulations.

# Orbit 3

Temperature and humidity  
sensor for measuring the  
production environment

Sigfox Antenna with a  
transmitting range of  
+20km

Lithium Primary Batteries  
providing up to 10 years of  
life\*

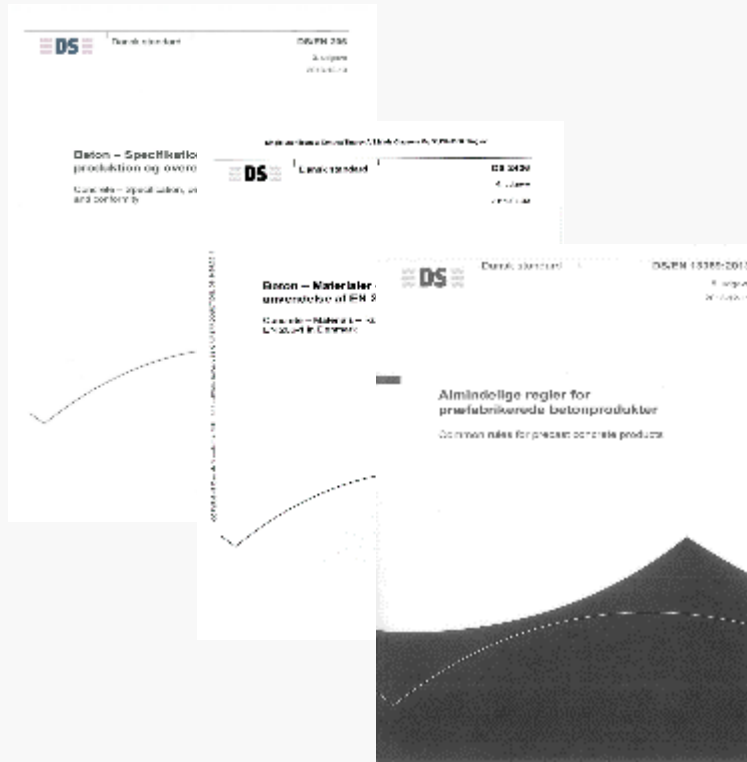


\* Battery life depends on mode, operating temperature, and frequency of measurements and transmissions. This is an estimate based on tests and simulations.

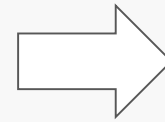


# Benefits - General

- Precise demolding time through real-time monitoring
- Easy optimization through analysis and statistics
- Quality control in critical stages of production
- Self-driven workforce through transparency



Complying with:  
DIN EN 13369, DIN EN 206



Temperature  
Strength  
Exposure Classes

Practice following:  
ASTM C1074, Arrhenius  
(Standard Practice for Estimating Concrete Strength by the Maturity Method)

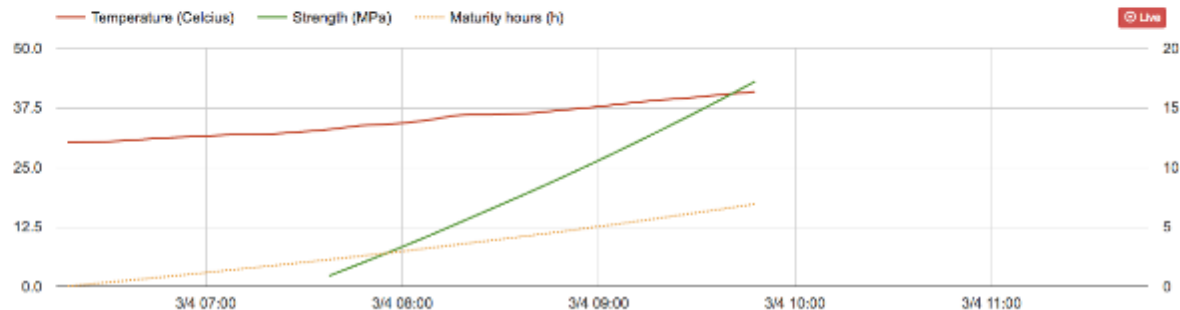
- Dashboard
- Production Plan
- Quality Reports
- Report
- Facility
- Statistics
- Compounds
- Sensors
- Change location
- Sign out

Production data

**28-03-2018 - 103345**

[Alarm](#)
[Print](#)
[Data Editor](#)
[Last updated 03-04-18 09:54:28](#)

Notes:



Maturity

6.9 / 18h

Strength

17.2 / 37 MPa

Average temperature

34.84°C

Current temperature

40.83°C

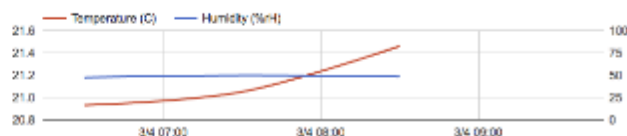
ETA

5h 42m

Elapsed time

3h 39m

Production Climate



P5016



Production data

28-03-2018 - 1

Notes:



## Production alarms



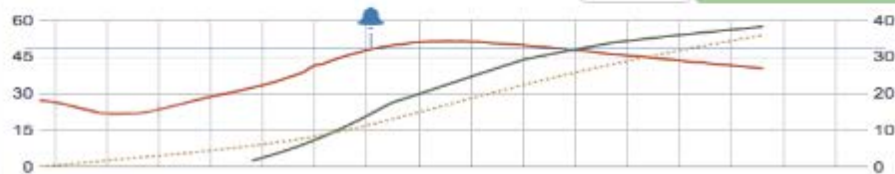
## Alarms

Alarm type	Limit	Receiver	Status
Strength	25 MPa	Rasmus Uhre	ON

## Set new alarm

Cancel

Activate alarm



## Alarm type

High Temperature

The alarm will be triggered, when the temperature has a value higher than the alarm limit.

## Alarm limit

50

°C (Celcius)

No receivers selected

## Receivers of alarm

Rasmus Uhre



Add user

Close

Alarm

Print

Data Editor

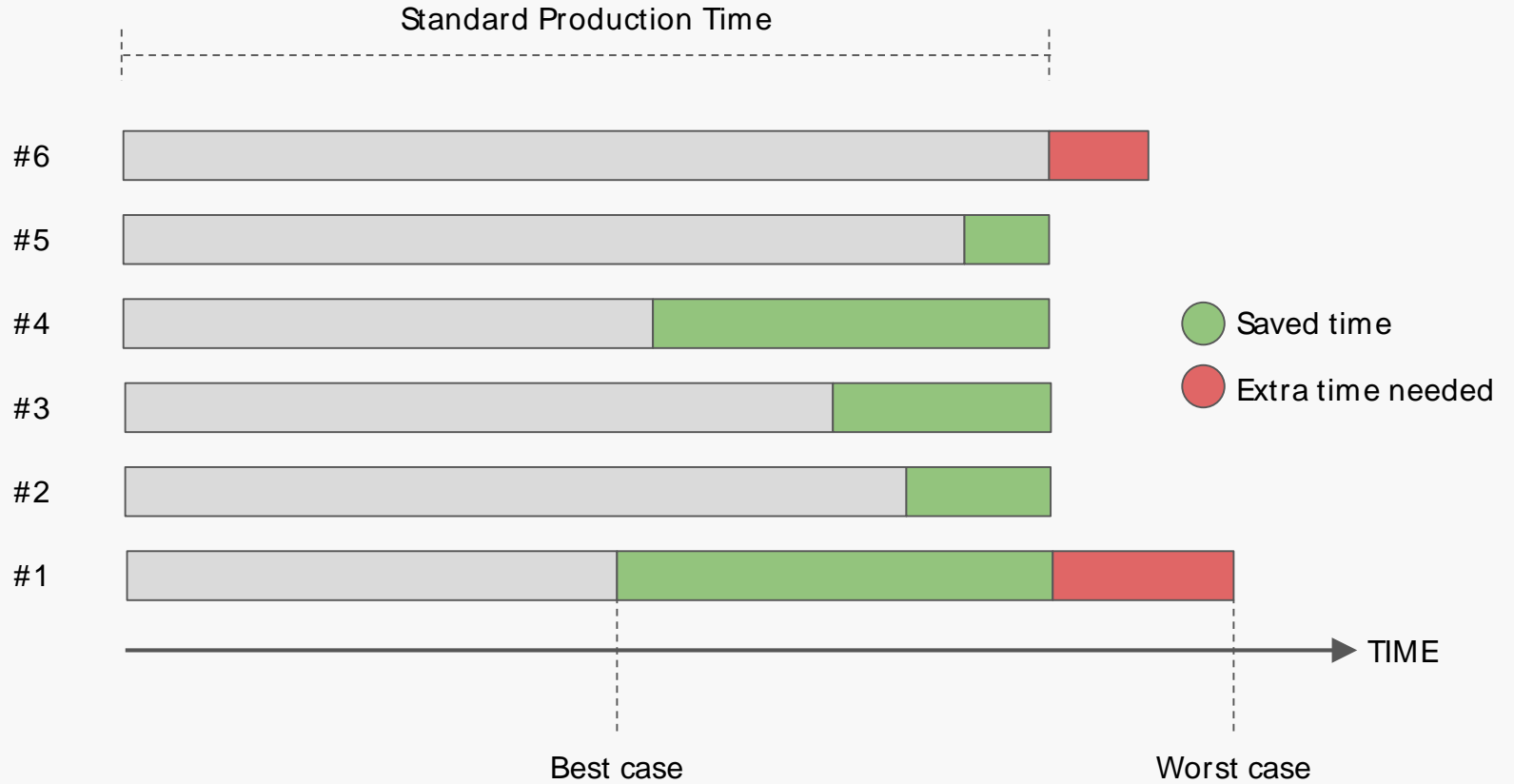
1/4 16:00 2/4 00:00 2/4 06:00 2/4 16:00 3/4

ETA

17h 20m

Elapsed time

139h 10m



# Walls curing time

Before:

11h

Now:

9.3h

Capacity increase:

16%

Data collection



# Hollow-core curing time

Before:

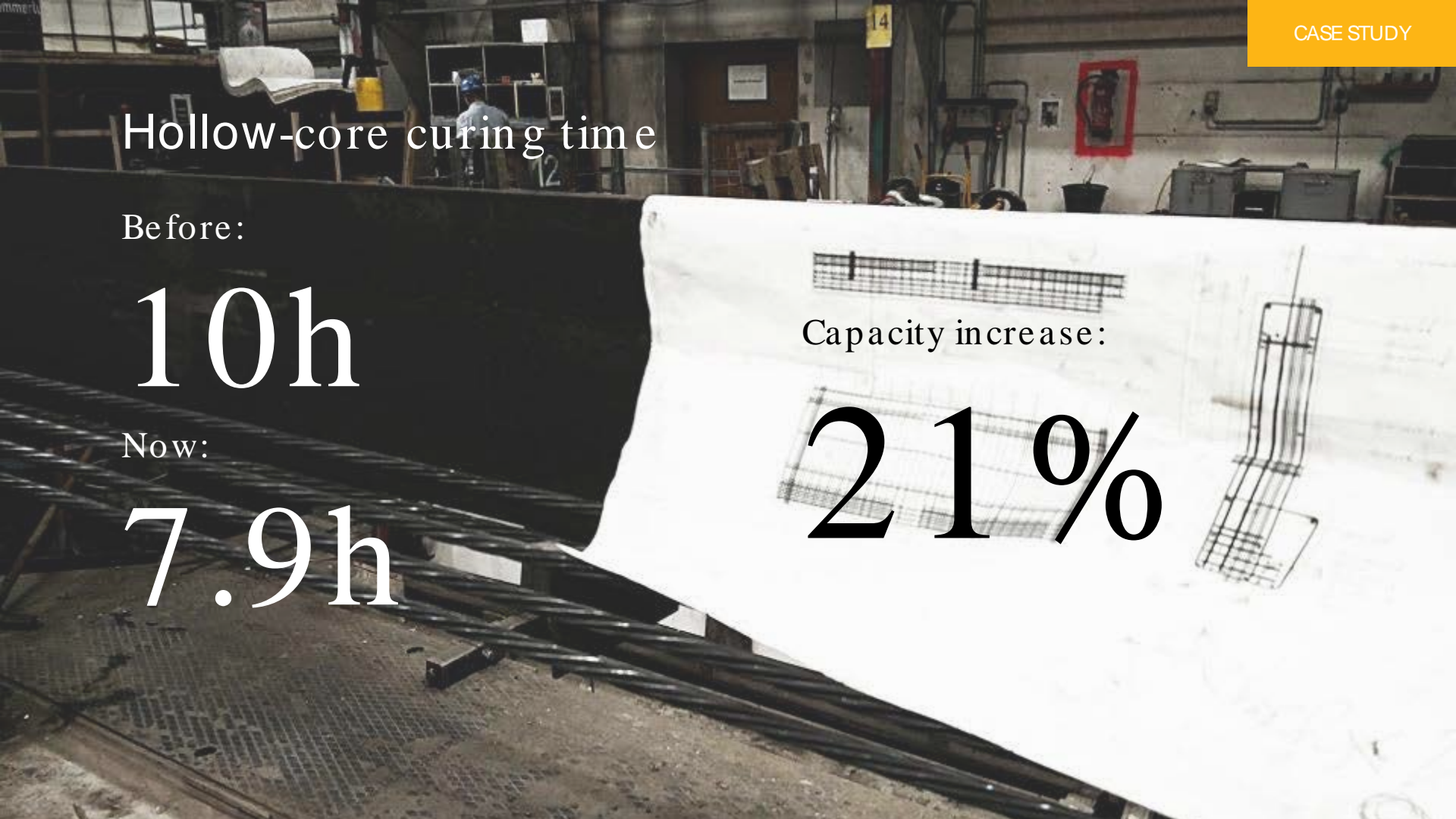
10h

Now:

7.9h

Capacity increase:

21%



# Benefits - Planning

- Compound optimization
- Workforce shifts
- Production planning
- Energy usage





# Start Kit Package

€ 2.500



3 Users and 1-2 recipes



3 Orbit K +1 Orbit 3



sensor



1 Tablet



40 Type K cables



40 Reports



Videocall Follow-up



Hot-line Support (8 - 15:30)

Start-up Contract - 5

# Roll-out Package

€ 6.000



12 Users



Education Day



Implementation Plan



Sigfox Coverage



Guarantee



Compound Analysis



On-site Application Test



Hot-line Support (8 - 15:30)

Service Level Agreement

# Price Models:

1:

## Orbit K:

Each sensor delivered is charged with each first 10 reports, then onwards pay from report No. 11, as below:

If damaged or broken sensors occurs by human handling each additional sensors to re-start is charged at €65.00

## Orbit 3:

Each delivered Orbit 3 will add clima-data to the report, each €120 per sensor (temp./humidity)

2:

Activate a capital investment for depreciation in your yearly settlement. This will reduce cost with 15% - 20 % per report.

	No. of Annual Reports				
	< 1000	< 3000	< 5000	< 10000	10000 <
Report	31 €	28 €	25 €	23 €	21.5 €
Thermocouple (K)	4 €	4 €	4 €	4 €	4 €
<b>Total</b>	<b>35 €</b>	<b>32 €</b>	<b>29 €</b>	<b>27 €</b>	<b>25.5 €</b>

# Tech support

Supervisor at facility

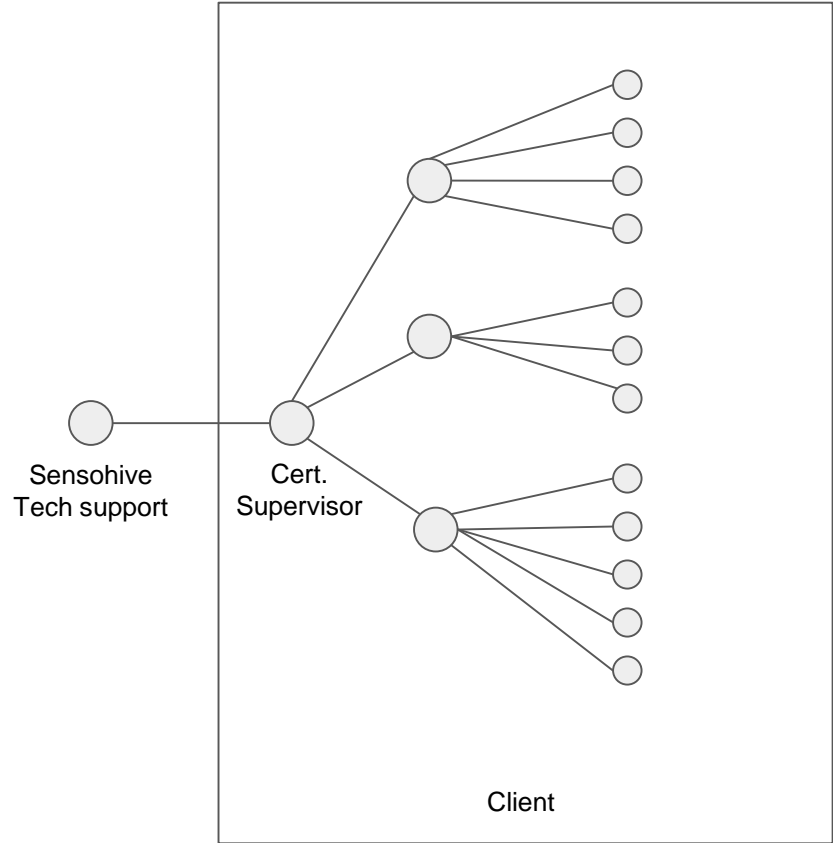
Training incl Certificate

Documentation

Video-guide

Business hours

Mail: [support@maturix.com](mailto:support@maturix.com)



# Orbit K + Orbit 3



RED + EMC Directive and Compliant

CE Marked and RoHs certified

TÜV Rhineland Q1, 2018 tested and approved

External Component Control

Full Traceability

Component Testing

Internal Quality Control

Single Unit Testing

Calibration & Operational Test

Measurement Range: -270 to 1260 °C (External, Orbit K)

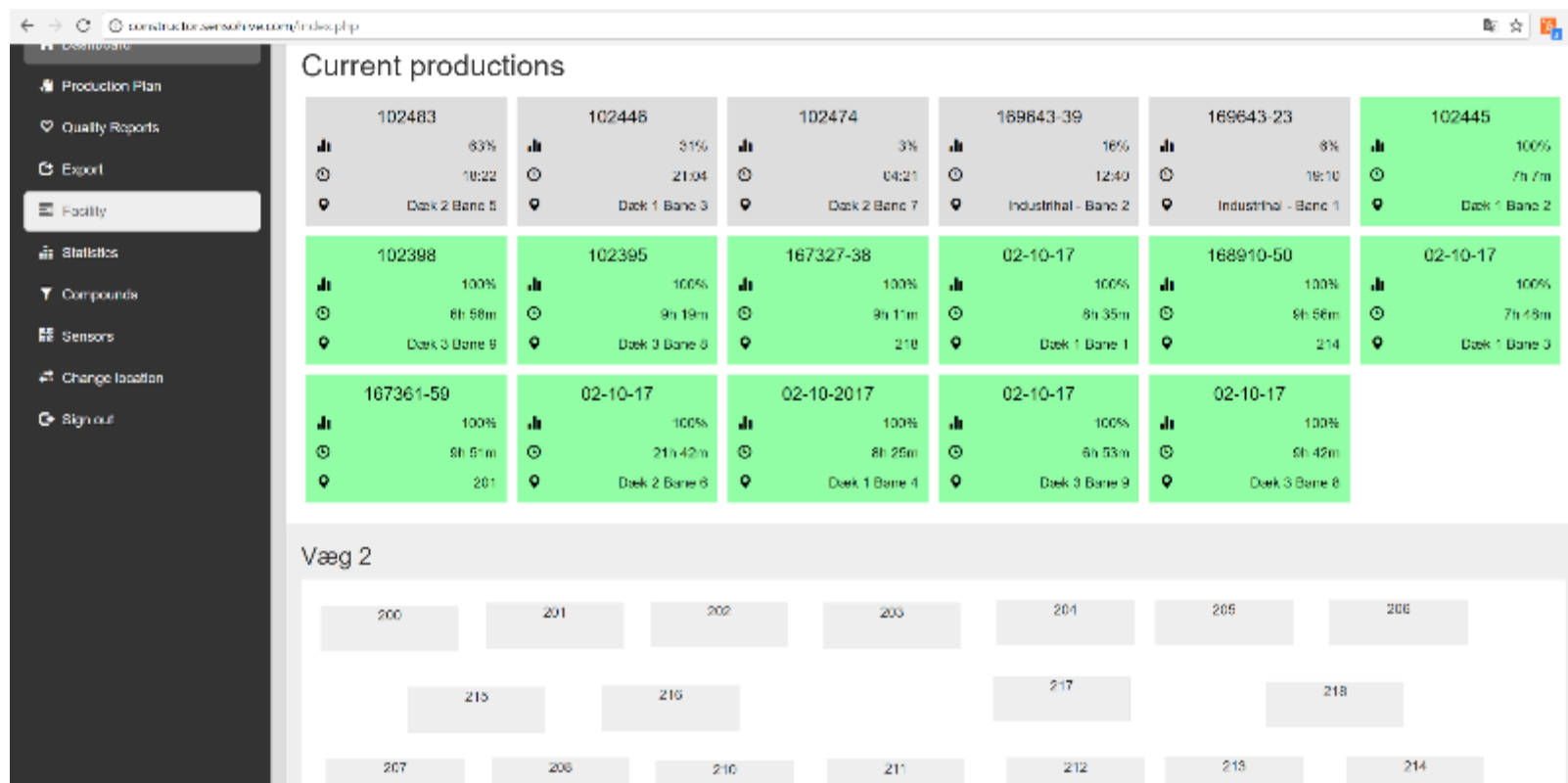
Measurement Range: -30 to 50 °C (Internal)

Operating Temperature: -30 to 50 °C

# Competitive Benefits

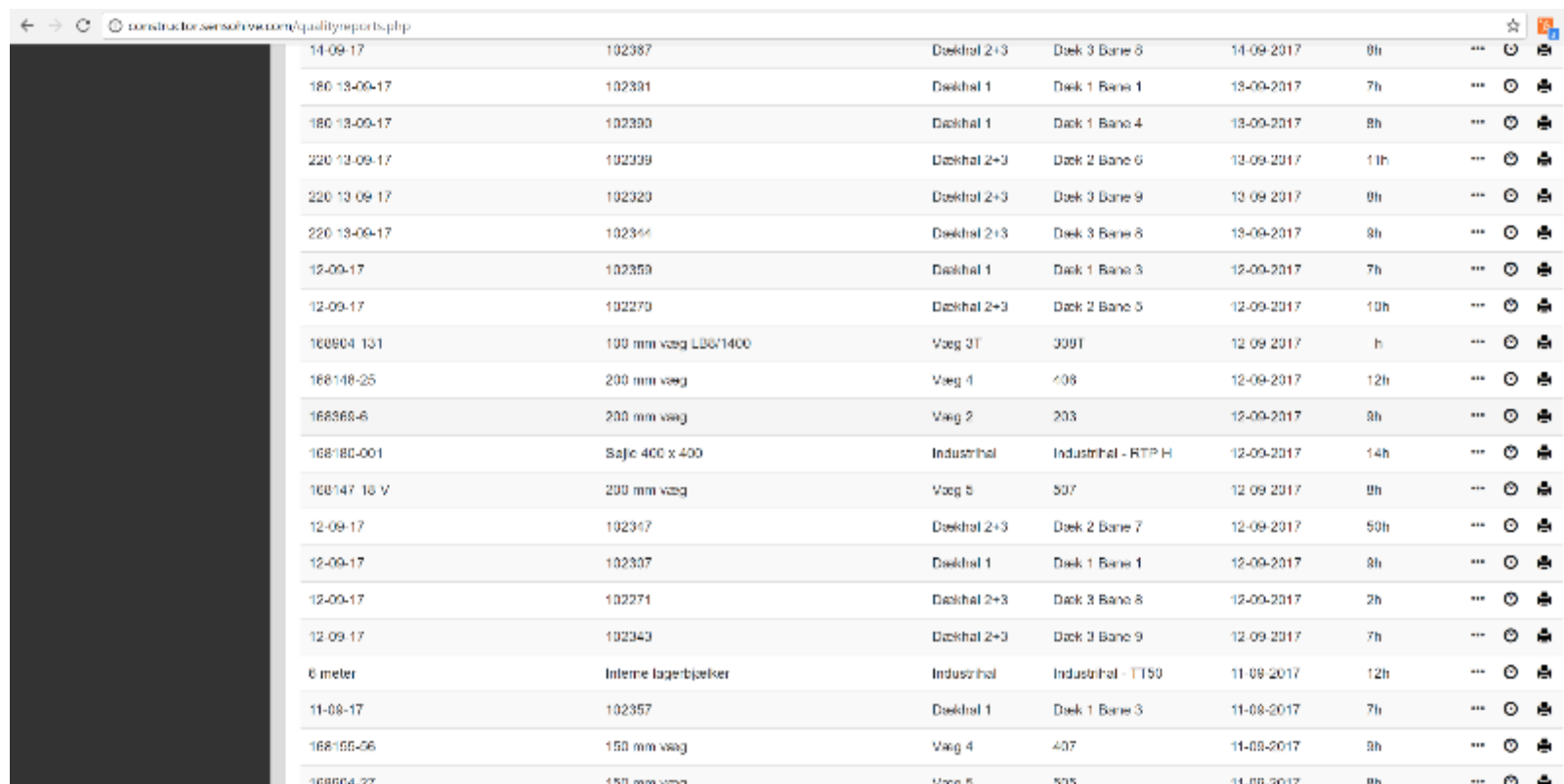


# Overview of Production



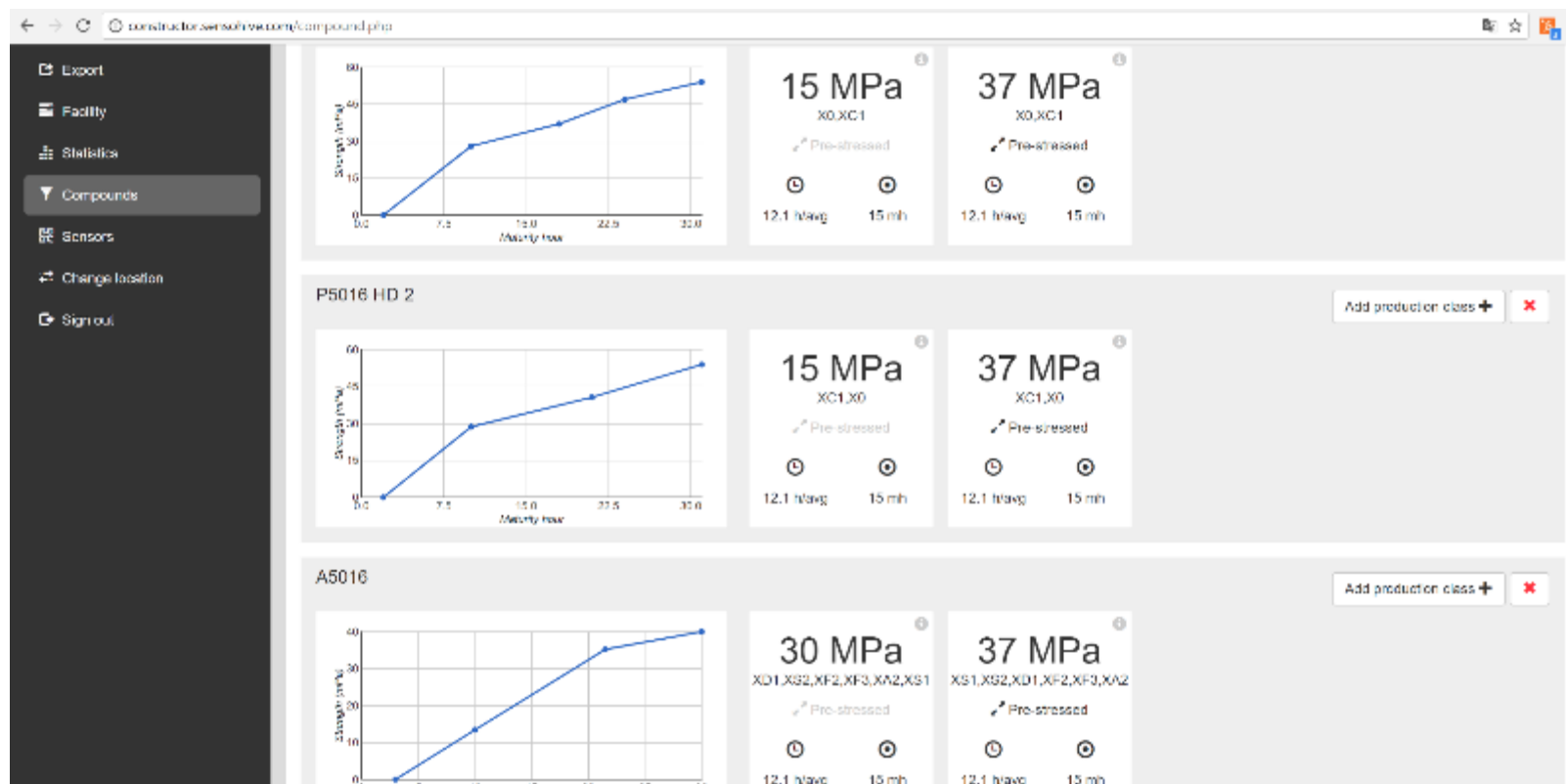


# Overview of Quality Reports

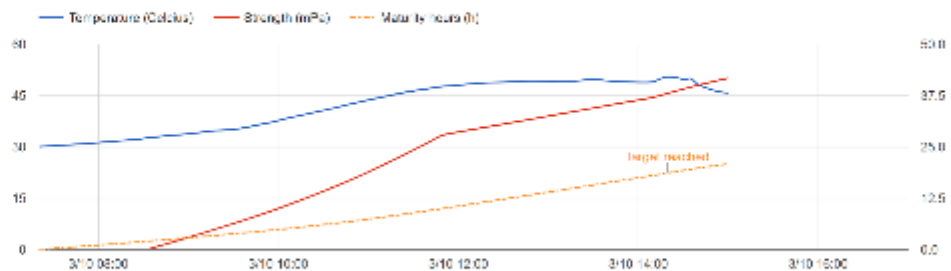


Date	ID	Location	Duration	Other Info
14-09-17	102387	Deekhal 2+3	Deek 3 Bane 8	14-09-2017 0h
18-09-17	102391	Deekhal 1	Deek 1 Bane 1	18-09-2017 7h
18-09-17	102390	Deekhal 1	Deek 1 Bane 4	18-09-2017 8h
22-09-17	102399	Deekhal 2+3	Deek 2 Bane 6	18-09-2017 11h
22-09-17	102320	Deekhal 2+3	Deek 3 Bane 9	18-09-2017 0h
22-09-17	102344	Deekhal 2+3	Deek 3 Bane 8	18-09-2017 8h
12-09-17	102359	Deekhal 1	Deek 1 Bane 3	12-09-2017 7h
12-09-17	102279	Deekhal 2+3	Deek 2 Bane 5	12-09-2017 10h
168904-131	100 mm væg LBS1400	Væg 3T	3991	12-09-2017 h
168148-25	200 mm væg	Væg 4	406	12-09-2017 12h
168366-6	200 mm væg	Væg 2	203	12-09-2017 8h
168180-001	Søjle 400 x 400	Industrial	Industrial - RTP H	12-09-2017 14h
168147-16 V	200 mm væg	Væg 5	507	12-09-2017 0h
12-09-17	102317	Deekhal 2+3	Deek 2 Bane 7	12-09-2017 50h
12-09-17	102307	Deekhal 1	Deek 1 Bane 1	12-09-2017 8h
12-09-17	102271	Deekhal 2+3	Deek 3 Bane 8	12-09-2017 2h
12-09-17	102343	Deekhal 2+3	Deek 3 Bane 9	12-09-2017 7h
6 meter	Interne lagerbjælker	Industrial	Industrial - IT150	11-09-2017 12h
11-09-17	102357	Deekhal 1	Deek 1 Bane 3	11-09-2017 7h
168166-06	150 mm væg	Væg 4	407	11-09-2017 8h
168904-27	150 mm væg	Væg 5	505	11-09-2017 8h

# Overview of Compounds



- Factory
- Statistics
- Compounds
- Sensors
- Change location
- Sign out



Maturity	Average temperature	E/A
20.8 / 18h	42.71°C	Finished
Strength	Current temperature	Production time
41.72 / 37 MPa	45.7°C	6h 58m

Production details



Unit name	00_10_17
Production ID	101088
Manufacturing zone	Zone1 2+3
Manufacturing workstation	Line 3 Base C
Sensor	T151M
Stop	Automatic
Production start	03-10-2017 07:20
Production finished	03-10-2017 14:18

P5016



Maturity hour (h)	Strength (MPa)
0	0
10	25
18	37
20	47
31	64

# Screens for production facility

- Certified to 24/7 operation
- Market's best operating statistics
- 5 year warranty
- 3 year on-site repair/swap (within 48 hours) by LG
- Tilttable bracket incl. lock
- Pre-setup to your location with dashboard - plug n' play



PRICE - OWN INSTALLATION/MOUNTING	DKK	€
1 x screen incl. setup, bracket, lock, and shipping	14995	1949
2 x screen incl. setup, bracket, lock, and shipping	24579	3195
3 x screen incl. setup, bracket, lock, and shipping	34163	4441
4 x screen incl. setup, bracket, lock, and shipping	43747	5687
5 x screen incl. setup, bracket, lock, and shipping	53331	6933
PRICE - INSTALLATION BY FITTER	DKK	€
1 x screen incl. setup, bracket, lock, shipping, and installation	17490	2274
2 x screen incl. setup, bracket, lock, shipping, and installation	28064	3648
3 x screen incl. setup, bracket, lock, shipping, and installation	38638	5023
4 x screen incl. setup, bracket, lock, shipping, and installation	49212	6398
5 x screen incl. setup, bracket, lock, shipping, and installation	59786	7772

*Prices for Denmark. All prices are excl. VAT.*



11.8 / 19h  
34.8°C  
3h 7m  
30.16 / 37 MHz  
43.09°C  
8h 5m

**BÖRSEN.**

Trümpfen über München und die Revolution 1918 • Die ...  
**Stiddeutsche Zeitung**

**FINANCIAL TIMES**

Only bad returns  
Qualcomm  
Broadcom's \$150bn

**maturix**

**MANUAL**  
Setup and Operating Instructions



sensohive

Thank you for your interest and attention!