

# DANA 2.0

| The online control and management system for natural pools

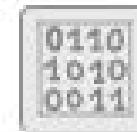
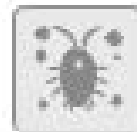
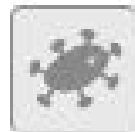


## 1. DANA 1.0 - The history of DANA

## 2. DANA 2.0 – From the database to an online management system

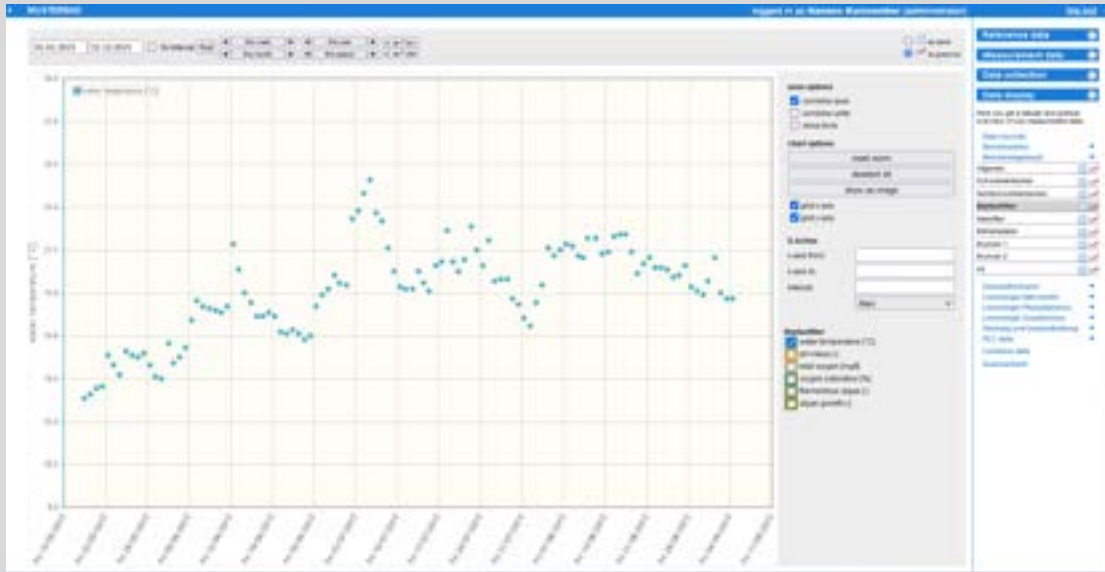
- User Groups
- Usability
- Security
- Data input
- Data output
- Control
- In the pipeline

## 3. Online presentation of DANA 2.0 – Testpool



# DANA 1.0 - The history of DANA

# DANA 1.0 – Background & user groups



- Online Database for public natural swimming pools
- Developed in 2007

## User Groups DANA 1.0:

- ✓ Pool owners (public and semi public)
- ✓ Operations manager
- ✓ Monitoring consultants
- ✓ Authorities
- ✓ Laboratories
- ✓ Research institutions
- ✓ Regulatory committees

# DANA 1.0 – Functions & User groups

## DANA 1.0

### Input

- Base data
- Operational data
- Hygenical data
- Biological data
- CPU data

### Output /Benefit

- All pool data in one place
- All data available for all participants
- Data display modul for analysis
- Tool for problem search
- Data for reasearch institutions
- Data for regulatory commitees

# DANA 2.0 – From the database to an online management and control system

# DANA 2.0 - Background



- Online **mangement and control** system for **private and public** natural swimming pools
- Final development in **2020-2021**
- **Betaphase** in Summer 2021 different private and pulic NSP

# DANA 2.0 – user groups

## DANA 1.0

- ✓ Pool owners (public and semi public)
- ✓ Operations manager
- ✓ Monitoring consultants
- ✓ Authorities
- ✓ Laboratories
- ✓ Research institutions
- ✓ Regulatory committees

## DANA 2.0

- + **Private NSP designer and building companies**
- + **Private NSP operators**
- + **Monitoring and maintenance companies for public and private NSPs**



# DANA 2.0 – Usability

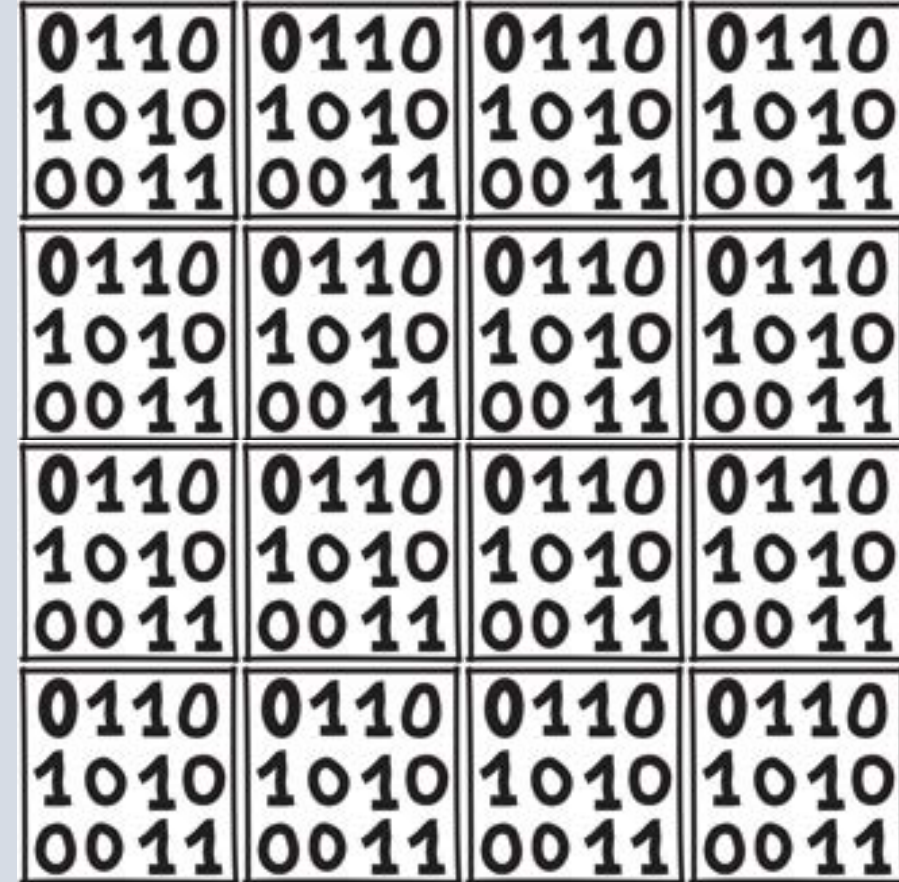
- + **6 languages** – more on request
- + **Individual Login**
- + User specific **user rights**
- + **Symbols** for easy navigation
- + Use of **mobile** devices possible
- + **Set up** of pool page online and **easy** – creation and use of templates possible
- + **Fast connection and low energy** – compressed data

## DANA 2.0



# DANA 2.0 – Security

- + All **privacy policies** included acc. To european standard
- + **Double encryption** on industrial standard: : Individual device IDs and TLS
- + **Two step login**
  - + Individual password-protected access for DANA 2.0
  - + Additional password-protected access for control dashboard
- + MQTT data: **Multi-tenancy of the system**: the database creates virtually different databases that have no access to one another



# DANA 2.0 – Automatic data input

+ **Digital data** from different measurement and control technologies

+ All CPUs with MQTT connection (cloud based)

+ Ondina

+ Control unit

+ Blue connect

+ More on request...



# DANA 2.0 – Manual data input

- + **Base data** (individual configuration)
  - + Contacts
  - + Documents
  - + Pictures
- + Own **controll points** with different measuring times
- + **Measurements**
  - + More options for operational data
  - + More chemical and biological data
- + **Maintenance lists**
- + **Combined measurment and maintanance**

The screenshot shows the DANA 2.0 software interface for a facility named 'IOB Test Pool'. The interface includes a sidebar with navigation icons, a main content area with a date selector (05.10.2021) and a 'Point' dropdown, and a list of measurement points. Below the list is an aerial map of the facility with blue markers indicating measurement points. At the bottom, there is a 'Wartungen' (Maintenance) table.

Wartungspunkt	task	Effort	Category	who	confirmed	from
Messpunkt 2	Adsorber: Material tauschen	30 min.	Maintenance	Monitoring	confirm now	34 Tage

# DANA 2.0 – Output

- + **Overview dashboards:** Individually configurable multiple dashboards of all DANA data (incl. max., min., average, limits according to valid guideline)
- + **Individual CPU dashboard**
- + **Alarms:** CPU, all manual parameters, maintenance alarms, Guideline alarms + individual alarms, Alarmmails
- + **External:** For example homepage of designer or client



# DANA 2.0 – Output

## + Base data:

- + History (in progress)
- + Operating manual (in progress)
- + Contacts
- + Documents with search functions

## + Measurements

- + Explanation of parameters
- + Proposal of measures

The screenshot displays a web-based measurement form titled "Point 'Schwimmer'" with the subtitle "No beam log". At the top, there is a clock icon and a timestamp "01.10.2023 08:10:07" with a "refresh" button. Below this, there are two rows of circular indicators for "algal growth" and "filamentous algae", each with a green indicator and a set of five smaller circles. The form includes several input fields with associated sliders and dropdown menus: "pH value", "Sauerstofffüllung (percent)", "visibility depth (Meter)", and "Wasserführung (l/h)". The "water temperature (°C)" field is set to "26" and has a red warning icon. A red warning box below this field contains the text: "Warning: 1. Check the probe for defects. 2. Check whether temperatures up to 28 °C can be tolerated (see reference). 3. Add cool filling water. 4. If there is a Neptune filter, increase the circulation so that the water temperature is lowered by means of evaporative cooling." At the bottom, there is a "comment" text area.

# DANA 2.0 – Output

+ **Maintenance schedule** (Upcomming tasks, overdue tasks, confirmation button, maintenance alarms)

## + Data analysis

- + Choose time frame
- + Choose data type (optional)
- + Choose data
- + Display adjustments
- + CSV download
- + Create templates for dashboards (favourites, troubleshooting)



# DANA 2.0 – CPU Control

- + Security login
- + Web based pool control





# DANA 2.0 – in the pipeline...

- + **Ticket system** for tasks
- + **Forum**
- + **Library**
- + CSV data from **laboratory reports** (in progress)
- + Expert system for plant analysis and choice  
(Pondanalyst)
- + CO2 calculations of building materials

# Online presentation of DANA 2.0

# DANA 2.0



<https://dana2.polyplan-kreikenbaum.eu/en/login>

User name: [dana2@iob.eu](mailto:dana2@iob.eu)

PW: #IOB2021!

Thank you for your attention 😊

<b>Sector</b>	<b>Service</b>	<b>Price</b>
	License / year	790,00 €
	First set up and education	240,00 €
	First set up CPU	650,00 €
Public	License / year	200,00 €
	First set up and education	-
	First set up Control unit	200,00 €
	First set up Undina	150,00 €
Private	First set up blue connect	150,00 €