

NS-T&RH

Temperature & Relative Humidity Monitoring System



NICK'S SOFTWARE

T&RH MONITORING

Overview

- ▶ **NS-T&RH Monitoring** is a wireless, flexible and scalable temperature and relative humidity monitoring solution
- ▶ Using **NS-T&RH** you can monitor room temperature, dry cabinets, fridges, freezers, burn-in chambers, storage rooms, cold rooms, glass displays and much more

Overview

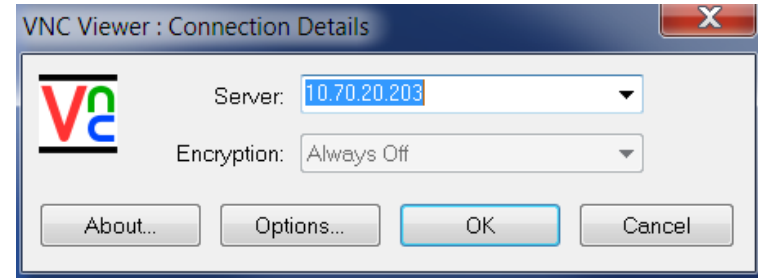
Using of the shelf components we lower your costs (acquisition and maintenance)

- ▶ System is using Raspberry Pi3 as single board computer
- ▶ T&RH sensors are:
 - High Precision capacity sensors
 - Outstanding long-term stability
 - Factory Calibrated
- ▶ Sensors can be changed without replacing the whole unit (reuse the Raspberry Pi)



Easy to setup

- ▶ Sensors are using your existing Wi-Fi network to send data to the server
- ▶ Sensors are configurable and take measurements at time intervals from 1/second to 1/day
- ▶ Sensors can be accessed and configured remotely via VNC



Email and SMS Notifications

- ▶ Sends emails and/or SMS notifications when temperature or relative humidity measurements are out of range
- ▶ Easy to configure the list of who needs to be notified
- ▶ Everything is done through the user friendly web based interface

Home / Admin / Email Notifications

Add new Delete

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<input type="checkbox"/>	Name	Email	By Email Or Sms
<input type="checkbox"/>	Nick	nick.niculita@	email

Security

- ▶ Multiple user levels
- ▶ Easy to update and reconfigure
- ▶ Configure user rights for each screen and function

Login

Username:

Password:

Remember me

[Sign Up](#) [Forgot password?](#)

T&RH Monitoring | Permissions | Assign users to groups | Add/Edit users | admin

Home / Permissions

Save | Reset | Displaying all tables | Ordering tables as in menu | Add group | Copy permissions from...

<Admin> <Default> <Guest> USERS

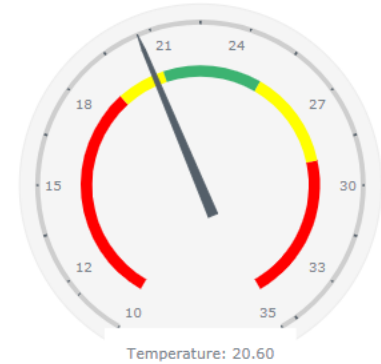
search	Add	Edit	Delete	List/View	Print/Export	Import	Admin mode (access to all records)
collapse all	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Temperature & Humidity Listing (2)							
<input checked="" type="checkbox"/> Temperature data (temperaturedata)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Temperature & Humidity (Temperature & Humidity)				<input checked="" type="checkbox"/>			
Dashboards (5)							
<input checked="" type="checkbox"/> Fridges Dashboard (Fridges Dashboard)				<input checked="" type="checkbox"/>			
<input checked="" type="checkbox"/> FR-1 Dashboard (FR-1 Dashboard)				<input checked="" type="checkbox"/>			
<input checked="" type="checkbox"/> FR-2 Dashboard (FR-2 Dashboard)				<input checked="" type="checkbox"/>			
<input checked="" type="checkbox"/> AIR-1 Dashboard (AIR-1 Dashboard)				<input checked="" type="checkbox"/>			
<input checked="" type="checkbox"/> Any sensor data (Any sensor data)				<input checked="" type="checkbox"/>			
Alarms (3)							
<input checked="" type="checkbox"/> Alarms (alarms)		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

Responsive Web Design

- ▶ NS-T&RH has been developed using Bootstrap, the most popular HTML, CSS and JS framework for developing responsive, mobile first experience on the web
- ▶ Responsive design fits on any screen
- ▶ Mobile App gives you great advantage and improves your productivity

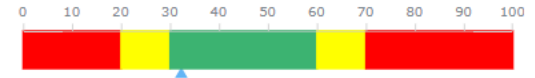
Warehouse (WH-1)

IP: 10.70.20.196 / MEL-RPI-026 / WH-1



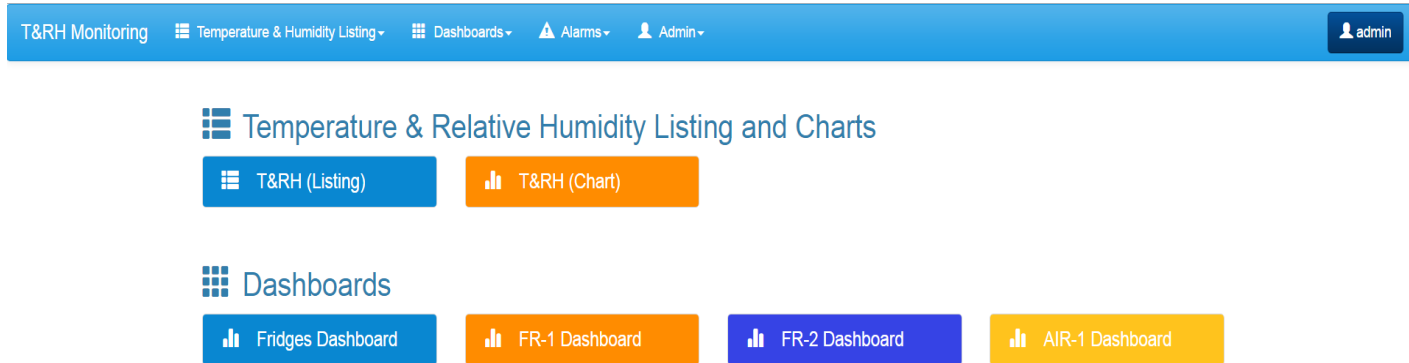
Warehouse (WH-1) RH

Humidity: 32.30



Main Features

- ▶ All features can be accessed from Main Screen that loads after a successful login.



Main Features – Advanced Search

- ▶ Easy to search by
 - Sensor
 - Date & Time
 - Temperature
 - Humidity
 - Multiple Search Operators (Contains, Equal, Not Equal, Empty, etc.)

Temperature data - Advanced search

Sensor

Date and time

Temperature

Humidity

T&RH Monitoring | Temperature & Humidity Listing - | Dashboards - | Alarms - | Admin -

search

Temperature & Humidity Listing - / T&RH (listing) -

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	Sensor	Date and time	Temperature	Humidity
<input type="checkbox"/>	FR-1	4/25/2017 3:25:02 PM	23.60	64.30
<input type="checkbox"/>	FR-2	4/25/2017 3:25:02 PM	23.70	59.40
<input type="checkbox"/>	AIR-1	4/25/2017 3:25:02 PM	23.50	64.50
<input type="checkbox"/>	FR-1	4/25/2017 3:20:01 PM	23.60	63.20
<input type="checkbox"/>	FR-2	4/25/2017 3:20:01 PM	23.80	59.70
<input type="checkbox"/>	AIR-1	4/25/2017 3:20:01 PM	23.60	63.10
<input type="checkbox"/>	FR-1	4/25/2017 3:15:01 PM	23.60	62.50
<input type="checkbox"/>	FR-2	4/25/2017 3:15:01 PM	23.80	59.50
<input type="checkbox"/>	AIR-1	4/25/2017 3:15:01 PM	23.50	65.00
<input type="checkbox"/>	FR-1	4/25/2017 3:10:01 PM	23.60	62.10
<input type="checkbox"/>	FR-2	4/25/2017 3:10:01 PM	23.80	59.40
<input type="checkbox"/>	AIR-1	4/25/2017 3:10:01 PM	23.50	65.50
<input type="checkbox"/>	FR-1	4/25/2017 3:05:02 PM	23.70	64.80

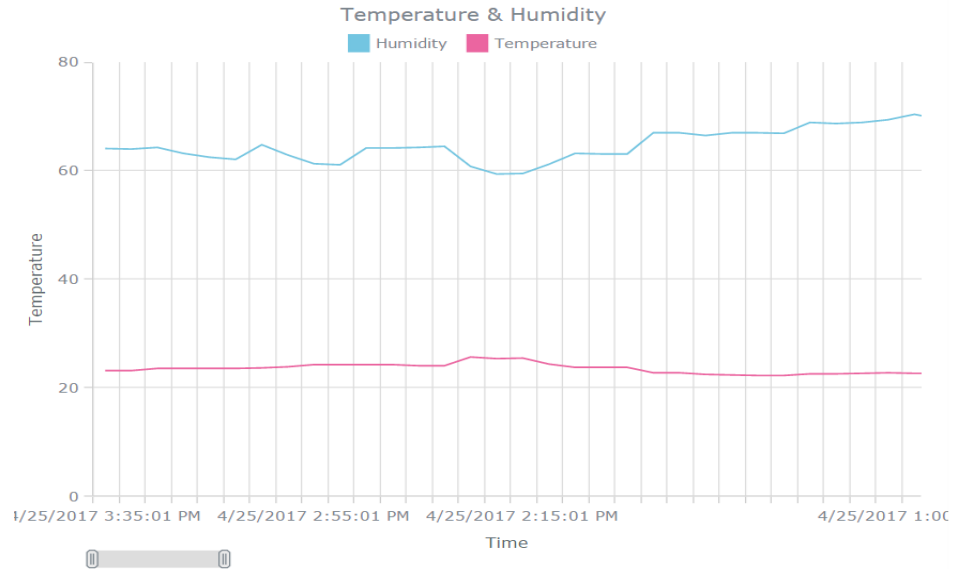
Main Features - Charts

- ▶ Temperature and Relative Humidity data can be also displayed as a chart. Information can be filtered based on Sensor Name and Time Stamp of the measurement

Temperature & Humidity - Advanced search

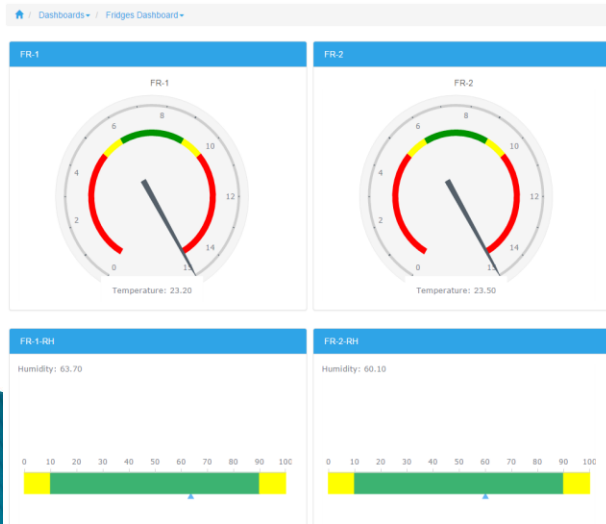
Date and time

Sensor



Main Features – Dashboards

- ▶ Sensors are grouped in Dashboards based on their location or temperature range
- ▶ Dashboards display multiple charts on a single page, making very intuitive the interpretation of the collected measurements



Main Features – Alarms

- ▶ Fully Searchable Alarms Log
- ▶ Alarms Grouped by Sensors or ordered by Date and Time

Alarms - Advanced search

Dateandtime: Equals

Sensor: Contains

Temperature: Contains

Humidity: Contains

Message: Contains

Min Temperature: Contains

Max Temperature: Contains

Min Humidity: Contains

Max Humidity: Contains

T&RH Monitoring | Temperature & Humidity Listing | Dashboards | Alarms | Admin

search

Alarms / Full Alarms Log

Delete Update selected

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	Dateandtime	Sensor	Temperature	Humidity	Message	Min Temperature	Max Temperature	Min Humidity	Max Humidity
	4/25/2017 4:00:01 PM	FR-1	23.10	64.90	Fridge temperature out of range	5.00	10.00		
	4/25/2017 4:00:01 PM	FR-2	23.70	58.20	Fridge temperature out of range	5.00	10.00		
	4/25/2017 3:55:01 PM	FR-1	22.90	66.00	Fridge temperature out of range	5.00	10.00		
	4/25/2017 3:55:01 PM	FR-2	23.60	59.80	Fridge temperature out of range	5.00	10.00		
	4/25/2017 3:50:01 PM	FR-1	22.90	66.10	Fridge temperature out of range	5.00	10.00		
	4/25/2017 3:50:01 PM	FR-2	23.60	60.00	Fridge temperature out of range	5.00	10.00		
	4/25/2017 3:45:01 PM	FR-1	23.20	63.80	Fridge temperature out of range	5.00	10.00		
	4/25/2017 3:45:01 PM	FR-2	23.70	58.60	Fridge temperature out of range	5.00	10.00		

Alarms / Temperature Alarms Grouped by Sensor

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Sensor	Message	No Alarms	MIN	AVG	MAX	LL	UL	Dateandtime
FR-1	Fridge temperature out of range	62	2.40	22.41	25.70	5.00	10.00	4/25/2017 11:47:14 AM
FR-2	Fridge temperature out of range	62	-7.60	21.90	24.60	5.00	10.00	4/25/2017 11:47:14 AM
AIR-1	Room temperature out of range	5	-7.20	11.94	30.70	19.00	29.00	4/25/2017 12:52:23 PM

Main Features – Admin

- ▶ Add, Edit or Delete:

- Sensor Name
- Location
- Temperature Offset
- Humidity Offset

Admin interface showing a table of sensors with controls for adding, deleting, and printing.

Buttons: Add new, Delete

Displaying 1 - 20 of 3 | 20 | Print

	<input type="checkbox"/>	<u>Sensor Name</u>	<u>Location</u>	<u>Offset T</u>	<u>Offset RH</u>
	<input type="checkbox"/>	FR-1	Fridge 1	0.00	0.00
	<input type="checkbox"/>	FR-2	Fridge 2	0.00	0.00
	<input type="checkbox"/>	AIR-1	Room Temperature	0.00	0.00

- ▶ Admin functions should be available only for users with higher access levels. These settings are critical for good functionality of the whole system.

Main Features – Admin

- ▶ For each sensor group, you can change using the web interface the, lower and upper limits

Home / Admin / Min Max

Add new Delete

Displaying 1 - 20 of 6 20 Print

	<input type="checkbox"/>	Limit Name	Limit Value
/Q	<input type="checkbox"/>	_min_T_fridge	5
/Q	<input type="checkbox"/>	_max_T_fridge	10
/Q	<input type="checkbox"/>	_min_T_RT	19
/Q	<input type="checkbox"/>	_max_T_RT	29
/Q	<input type="checkbox"/>	_min_RH_RT	20
/Q	<input type="checkbox"/>	_max_RH_RT	70

Main Features – Admin

- ▶ New users can be added from Admin Web Page
- ▶ Or users can be also created from login page by clicking on **Sign Up** link

Home / Add/Edit users

Inline Add Delete Save all Cancel

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	ID	Username	Password	Email	Fullname	Groupid
✓		admin			
✕	1	admin	admin			
✕	2	user	user			
✕	9	nick	nick	nick.niculita@srxglobal.com	Nick	

Login

Username: admin

Password:

Remember me

Sign in Login as Guest

Sign Up Forgot password?

Register

Username *

Password *

Re-enter password *

Email *

Fullname

Register Back to login page

Thank you!



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