



Product Proposal

Temperature Data Logger

Nex-G Automation LLP

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[Www.nexgautomation.com](http://www.nexgautomation.com)

1. Introduction

The **THDL-GSM-WiFi** is a compact, intelligent Temperature and Humidity Data Logger designed for remote monitoring in industrial and critical storage environments. It integrates a high-accuracy 7Semi SHT40 sensor probe, LCD display, GSM-based SMS/Call alerts, and relay trigger. Configuration is simplified via WiFi instead of a keypad.

2. Key Features

- **Sensor:** 7Semi SHT40/SHT20 Digital Temperature & Humidity Sensor Probe
- **Display:** LCD 16X2
- **Connectivity:**
 - 2G/3G/4G GSM module for SMS and Call alerts
 - WiFi access point for device configuration (thresholds, numbers, calibration)
- **Configuration Parameters (via WiFi):**
 - Temperature & Humidity threshold settings
 - 6 mobile numbers for alerts
- **Alert Modes:**
 - SMS and Call alerts when thresholds are crossed
 - Sensor open detection alert(failure detection is not possible due to the many possibilities)
- **Relay Output:**
 - For external hooter/siren triggering on threshold breach
- **No Keypad Design:**
 - Secure and tamper-proof, no local key input required

3. Applications

- Cold Chain Monitoring
- Warehouse and Storage Rooms
- Clean Rooms and Laboratories
- Agriculture & Greenhouses
- Pharma & Vaccine Storage

4. Technical Specifications

Parameter	Specification
Temperature Range	(Mini)-40°C to +125°C (Max), Can not be extend beyond this value.
Humidity Range	0% RH to 100% RH
Accuracy	±0.2°C (Temperature), ±2% RH (Humidity) Note: For Accuracy of 0.1dC temperature & 1% Humidity – 7Semi SHT45 need to be used.
Sensor Cable length	1-meter max
Display	LCD 16X2
Connectivity	GSM (2G/3G/4G) + WiFi (for setup)
Configuration Method	WiFi Access Point / Web Interface
Power Supply	12V, 2Amps External DC Adapter
Relay Output	1x NO/NC contact, max 2A load
Solid state output for Siren	12VDC, 500mAmps
Calibration	Not provided in this version

5. SMS/Call Alert Content Example

"Alert: Temperature = 37.5°C, RH = 89%, Threshold Exceeded. Location: Warehouse-3"

6. User configuration options & Steps

Step-1: Connect the Smart phone WiFi to the Temperature data logger via WiFi hotspot.

Step-2: Open the browser in the phone, type the IP address(192,168,4,1) and enter.

Step-3 User sees the login page, need to enter the login credentials.

Step-4: Once the user logged in, he will be able to enter the phone numbers (max 6), Temperature threshold, Temperature Hysteresis, Humidity threshold & Device Location. Enter the inputs and submit the page.

7. Manufacturer configuration options

Step-1: Connect the Smart phone WiFi to the Temperature data logger via WiFi hotspot.

Step-2: Open the browser in the phone, type the IP address(192,168,4,1) and enter.

Step-3 Manufacturer sees the User configuration page where Setting option will be provided.

Step-4: Click on Setting option to enter in to the Manufacturing Configuration page.

Step-5: Enter the appropriate the credentials to enter the page.

Step-4: Once the Manufacturer logged in, They will be able to Select or set the phone numbers with help of radio button. They can also enter the SMS/Call Cycle Timer value and Alarm Ignore value.

8. Functionality or operation details

1. Power-Up and Initialisation

Upon powering on, the device performs a self-check and loads the pre-configured threshold values for both temperature and humidity. These thresholds define the acceptable environmental range for operation.

2. Monitoring and Detection

The device continuously monitors the ambient temperature and humidity. If either parameter exceeds the configured threshold, the system identifies it as an abnormal condition.

3. Alert Mechanism

Once an abnormality is detected:

- SMS Alerts: The device initiates SMS alerts to all pre-configured mobile numbers.
- Voice Calls: Immediately after the SMS cycle, the device starts making voice calls to the same set of numbers.
- This alert cycle continues until the system receives an "ACK" (Acknowledgement) message from any one of the recipients, confirming that the alert has been received and noted.

4. Relay and Hooter Activation

In conjunction with the alert mechanism:

- The system triggers a relay OFF condition, which can be used to disable connected equipment or activate safety protocols.
- Simultaneously, the hooter output is enabled, providing an on-site audible alert.

5. Cycle Timing (CYCLE TIMER)

The CYCLE TIMER is a configurable delay that defines the preparation or interval time between alert cycles. It ensures that the system manages repeated alert attempts in a controlled manner.

6. Reset and Temporary Suppression (IGNOR TIMER)

In certain situations, despite the environmental threshold being breached, alerts need to be temporarily suppressed. For such scenarios:

- A manual RESET button is provided on the device.

- When pressed, the system temporarily ignores the temperature and humidity inputs, preventing further alerts.
- This suppression is controlled by the IGNOR TIMER, which is user-configurable during setup.

7. Post First Cycle Behaviour

- After the initial SMS and call cycle is completed:
- Only voice calls will be attempted in subsequent cycles.
- SMS will not be repeated unless a new threshold breach occurs after system reset or reactivation.

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