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ERM6 V3.0

Environmental room monitor – server room monitor

ERM6 V3.0

Environmental Room Monitor – Server Room Monitor

User's Guide & Reference Manual

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Product Overview

The ERM6 V3.0 have two mounting options:

- **Compact or Standalone Mount**
- **19" Rack Mount** (with rack mount bracket installed)

FRONT VIEW – COMPACT or standalone mount



FRONT VIEW – 19" Rack mount -with rack mount bracket installed



Rear view: AC input connections, power supply input, and optional LTE module output.



SENSOR KIT and POWER SUPPLY



ERM6 Environmental monitor - server room monitor

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1. SYSTEM DESCRIPTION

ERM6 V3 Environmental room monitor

System Description

The ERM6 V3.0 is a robust and accurate environmental monitoring system featuring:

- **100Mbps Ethernet port with SNMP** for remote monitoring
- **Real-time tracking of:**
 - Two AC voltage inputs (main supply and auxiliary backup)
 - Intrusion detection
 - Ambient humidity and temperature
 - Two external stainless-steel temperature probes
 - Water detection
 - Smoke detection
- **OLED Display** for quick on-site readings
- **User-programmable alarm relay** and **user-controlled relay** for automation and alert responses
- Suitable for **server rooms, laboratories, industrial sites, and other remote locations**

2. POWER SUPPLY AND SENSOR SPECIFICATIONS

POWER SUPPLY

- Accepts **12VDC to 60VDC** input
- Can be powered by:
 - **220VAC to 12VDC/24VDC adapter**
 - **Battery backup or battery bank** (12VDC – 56VDC)
- Monitors DC input voltage via **home web page and SNMP** (useful for UPS battery banks)

SENSOR SPECIFICATIONS

SENSOR	TYPE	POWER FROM ERM6	RANGE and specs	ALARM
DC INPUT voltage	From a power supply or batteries	ERM6 DC power input-the unit functions from this input	12VDC to 60VDC 1% accuracy	Enable/Disable in setup page with alarm level setting
INTRUSION	Potential free switch contact input	Ground loop – ERM6 supplies ground for the loop	Normal on Short circuit and alarm on open circuit condition	Enable/Disable in setup page
AH/AT	Digital ambient humidity and ambient temperature	+5VDC via self- resettable fuse to protect output from short circuits	AH: 20%RH-80%RH AH = 5% accuracy AT: 0 to 50 Degrees C AT = 2% accuracy	Enable/Disable in setup page with alarm level setting
TEMP1	Digital temperature sensor	+5VDC via self- resettable fuse to protect output from short circuits	-50 to +120 Degrees C Accuracy = $\pm 0.5^{\circ}\text{C}$	Enable/Disable in setup page With alarm level setting
TEMP2	Digital temperature sensor	+5VDC via self- resettable fuse to protect output from short circuits	-50 to +120 Degrees C Accuracy = $\pm 0.5^{\circ}\text{C}$	Enable/Disable in setup page with alarm level setting
WATER	Digital water sensor – gold plated sensing tracks	+5VDC via self- resettable fuse to protect output from short circuits	N/A – Triggers when water detected	Enable/Disable in setup page
SMOKE	Digital Photoelectric smoke sensor	+12VDC via self- resettable fuse to protect output from short circuits	N/A – Triggers when smoke detected	Enable/Disable in setup page
MAINS AC Voltage	Internal Transformer isolated input for safety	N/A	Monitored only: 60 to 275VAC 1% accuracy	Enable/Disable in setup page with alarm level setting
UPS AC voltage	Internal Transformer isolated input for safety	N/A	Monitored only: 60 to 275VAC 1% accuracy	Enable/Disable in setup page with alarm level setting

Each sensor power line is protected by its own self resettable internal fuse

Short circuits on one sensor line will not influence the other sensors

SENSORS:

Magnetic - door switch set for intrusion – can be wired in series with other alarm devices switch contacts to add multiple alarm device to the intrusion port.



Digital ambient Humidity and ambient temperature sensor



Digital temperature sensor 1 - Stainless steel



Digital temperature sensor 2 – Stainless steel



Digital water sensor – gold plated tracks to prevent rust on detector



Smoke sensor - Photoelectric type smoke sensor – infra red



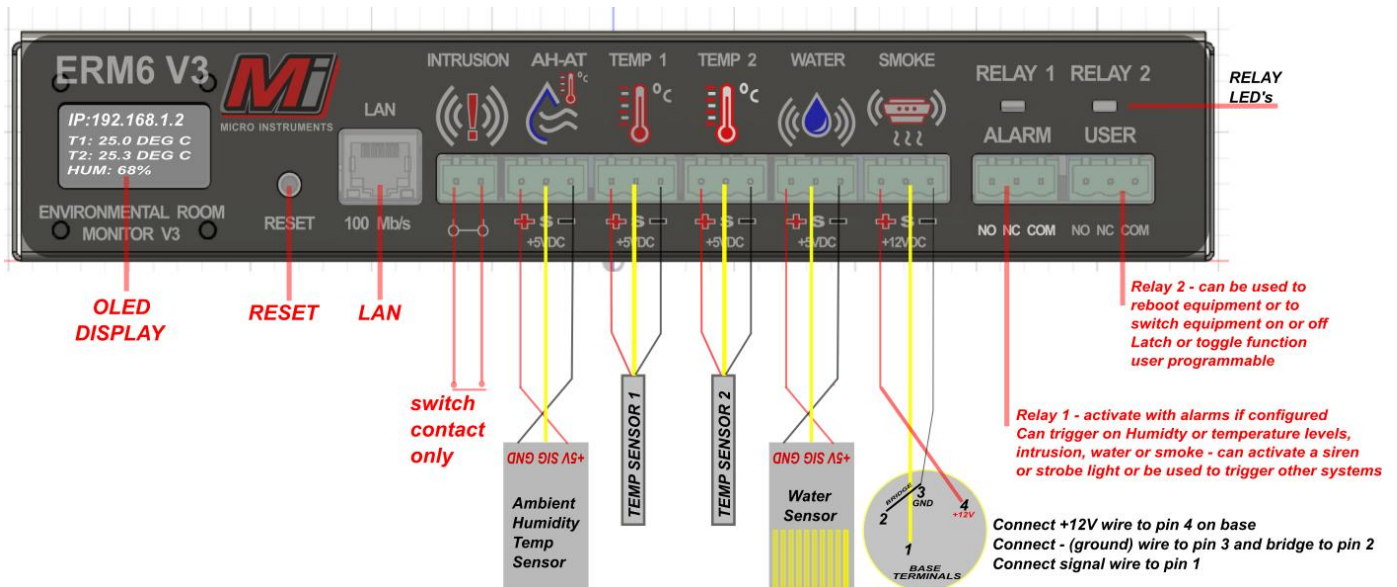
3. ALARM RELAY and USER RELAY

Alarm Relay & User Relay

- **Alarm Relay:** Triggers when user-defined alarm thresholds are exceeded. Can be used for external alarms, sirens, or strobe lights.
- **User Relay:** Provides Normally Open (NO), Normally Closed (NC), and Common (COM) terminals. Can be programmed to **pulse (for equipment reboots)** or **latch (for switching devices on/off)**.
-

4. SENSOR CONNECTIONS:

FRONT

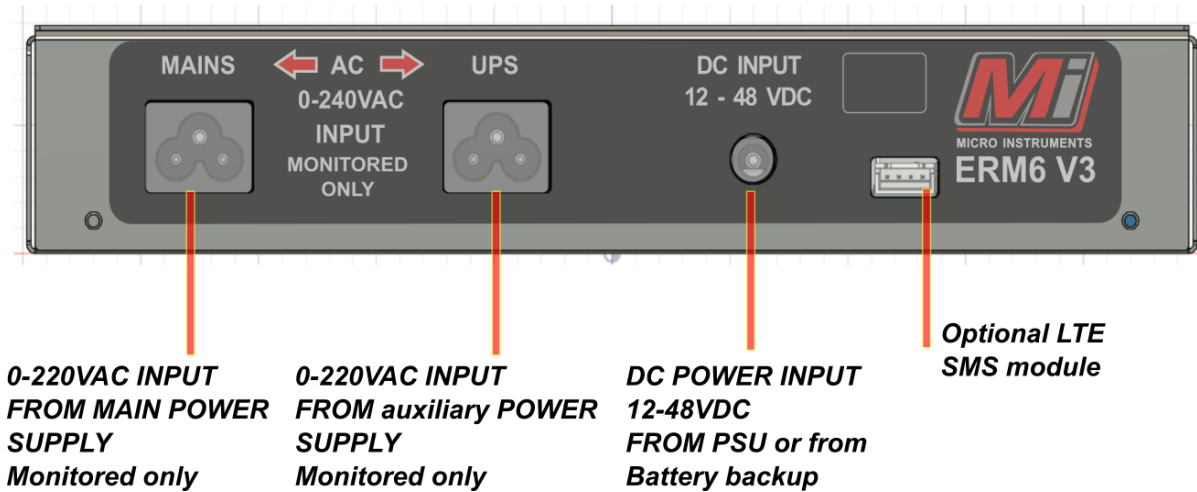


- Includes 10m, 4-core multi-stranded cable for sensor wiring
- **Polarity must be observed** when wiring stainless steel temperature sensors, only humidity, smoke, and water sensors have built-in polarity protection.



AC inputs (Mains & UPS) are for monitoring only (not for powering the ERM6)

ERM6 REAR



The MAINS AC input and Auxiliary AC input does not power the ERM6 and is only monitored – calibrated from 60 to 275V AC – internal surge protection and fused – monitored via isolated circuitry for safety.

Mains and UPS (auxiliary) 220VAC inputs use Clover power cords

DC jack input = 5.5/2.1mm DC jack – voltage input 10VDC to 60VDC max.

DC input can be used to monitor the voltage from battery banks if required.

LTE output Terminal connects to the optional ERM6 LTE 4G SMS module

5. RESET UNIT AND DEFAULT PASSWORD

To Reset the ERM 6 unit to factory defaults, in runtime press and hold the rest button located next to the Ethernet port until the OLED screen indicates the Mi logo, release button

Default Password after reset:

admin

6. LTE 4G SMS module (optional extra)



LTE 4G SMS Module (Optional Extra)

When the LTE module is successfully connected to the ERM6 the “LTE module connected” tag on the Home web page will turn **Green**, if not connected the tag stays grey. The ERM6 will handshake continuously with the LTE 4G module to determine its presence.

- **Requires a user-supplied SIM card**
- **Admin-controlled:** The first registered number is the administrator. Admin can add/remove up to 4 additional numbers.
- **Alarm notifications** sent to all enrolled numbers.
- **Remote control of LTE relay via SMS** (Admin only).
- **Status requests via SMS** return all monitored values.

Setup Instructions:

1. **Connect the antenna** to the LTE module.
2. **Insert the SIM card** and connect the LTE module to the ERM6.
3. **Wait for network connection** (LED will flash slower once connected).
4. **Register admin number** by sending **Register** via SMS.
5. **Add additional numbers** using **Add** + CountryCode-PhoneNumber. (example: **Add +27123456789**)
6. **Check registered numbers** using **List**.
7. **Remove a number** using **Remove IndexNumber**. (example **Remove 3**)
8. **Control relay** with **Relay on** or **Relay off** (Admin only).
9. **Request status** using **Status** (Admin only).
10. **Deregister admin** with **Deregister**.

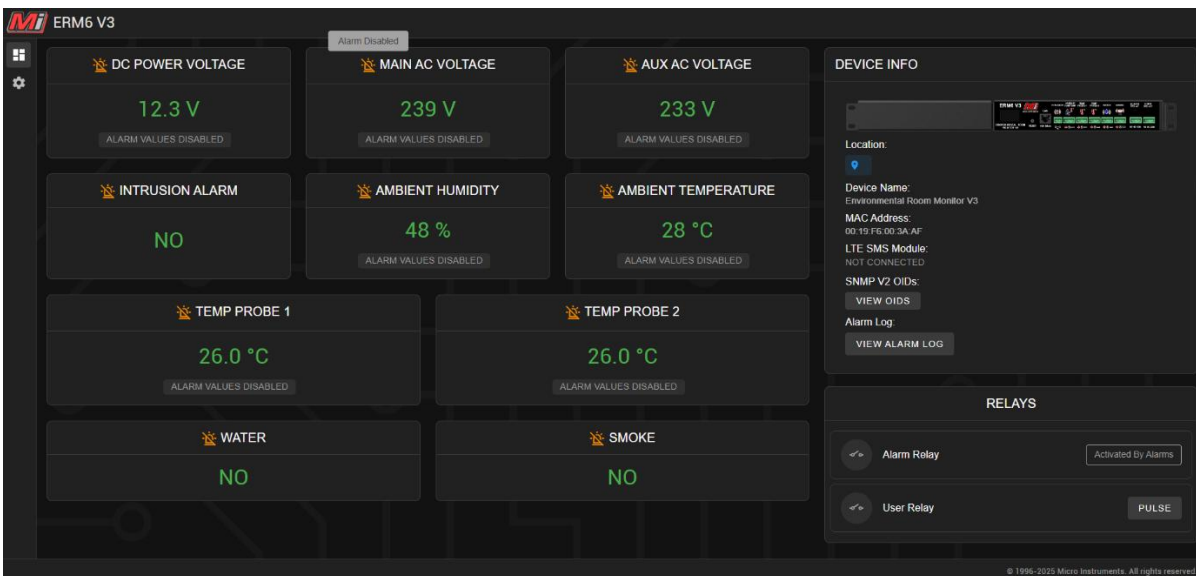
7. WEB PAGES

- **Home Page Features:**

- Assign name tags to DC input, AC inputs, and sensors.
- Alarm indicators:
 - **Amber:** Sensor values within 15% of alarm threshold.
 - **Red:** Sensor values exceed alarm threshold.
 - **Error:** Unplugged or faulty sensors detected.
- **Alarm Log:** Displays the last triggered alarm event.

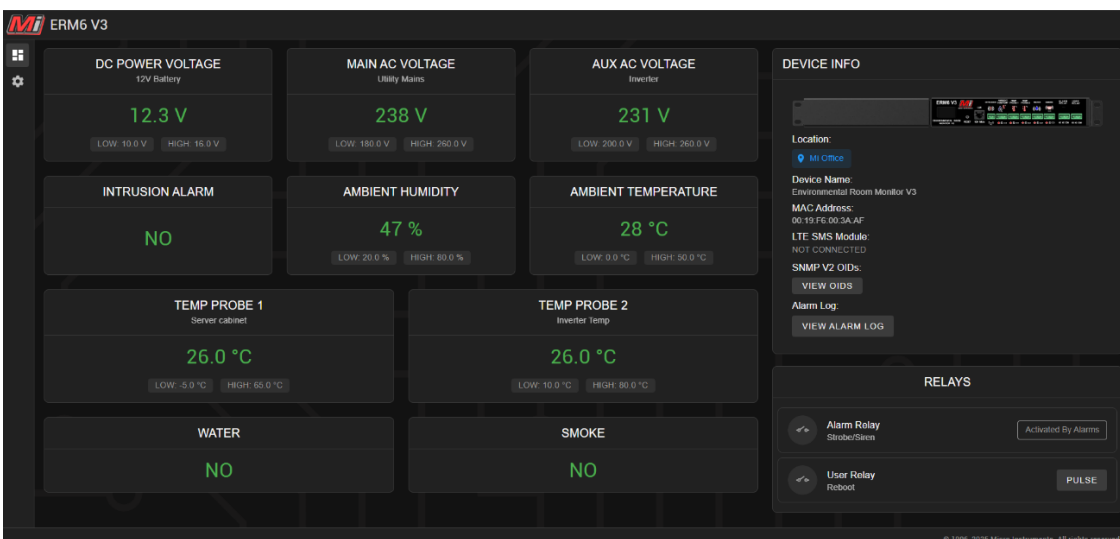
Home page

All **disabled** alarms indicated by an **AMBER** alarm symbol with strike through



Home Page

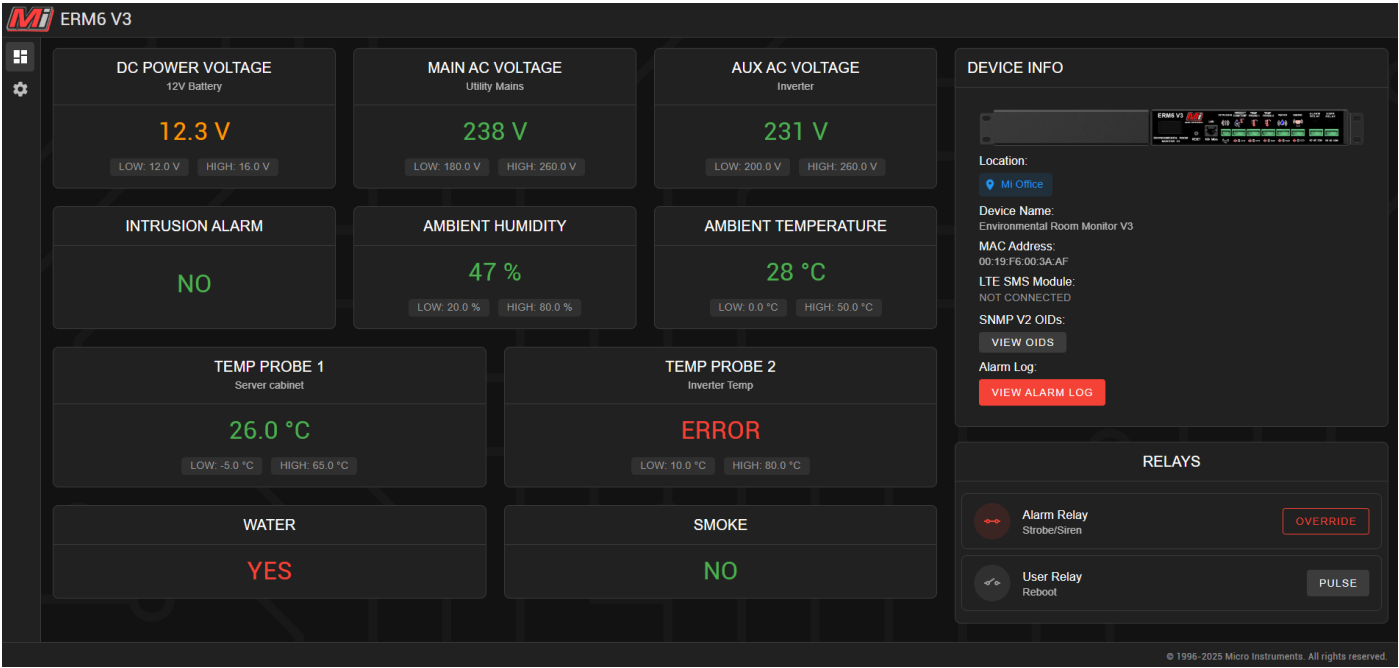
All Alarms **enabled**



Home page

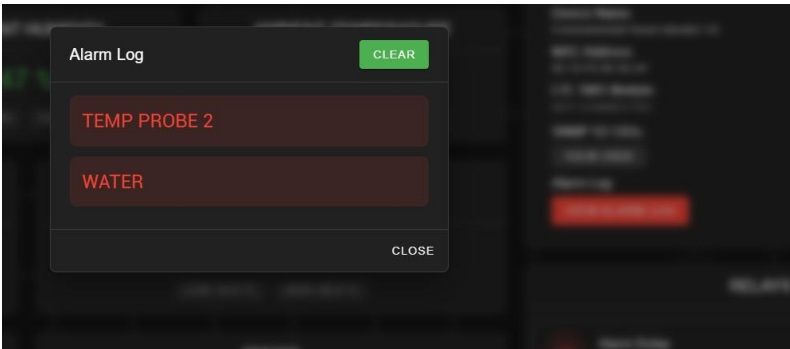
DC voltage value within 15% of alarm threshold

Temp probe 2 not connected or broken wiring - Alarm log triggered

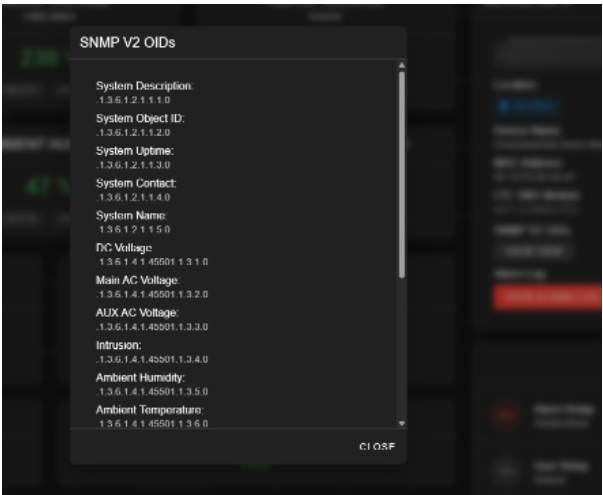


Alarm Log

Last sensors which caused an alarm condition is viewable in the alarm log

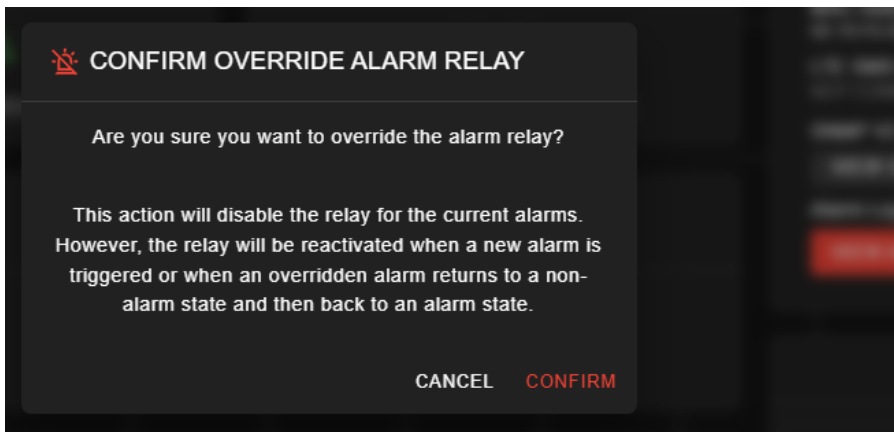


SNMP OID Table viewable from Home page



ALARM RELAY

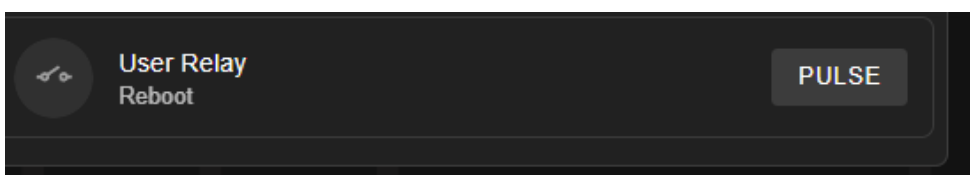
When an alarm occurs and the alarm relay needs to be **deactivated** by the user for any reason the **override** button can be used to override the alarm relay – password required to override



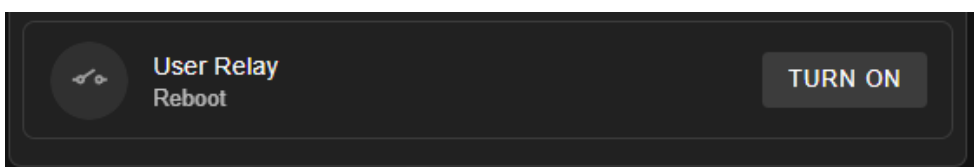
USER RELAY

User relay can be configured to **PULSE or LATCH**

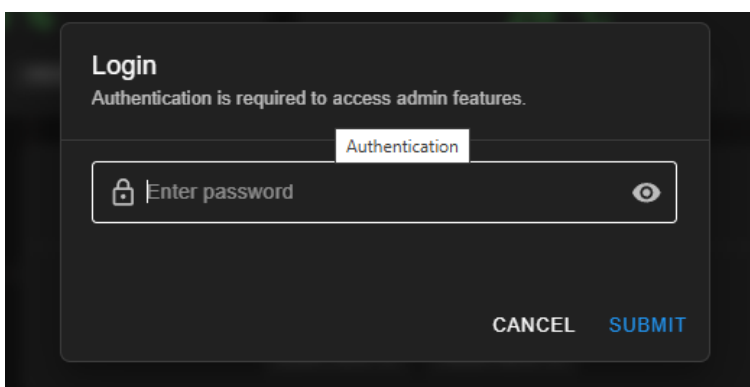
Pulse mode - Pulse displayed



Latch mode – Latch displayed



Logging into the settings page requires authentication password – Default is **admin**



SETTINGS PAGE

- **Settings Page:**
 - Assign name tags to DC input, AC inputs, and sensors.
 - Configure location, voltage inputs, sensors, and relay settings.
 - Set alarm thresholds.
 - Authentication required to modify settings.

Settings

DEVICE LOCATION TAG

Define location tag for quick identification

Location Tag

 Mi Office

DC POWER VOLTAGE

Device DC Power Input Voltage

DC Voltage Tag

12V Battery

e.g AC-DC Adapter, 100Ah Lithium etc.

☒ DC Voltage Alarm Enabled

Range: 10V - 60V

Voltage LOW

12

^

v

Voltage HIGH

16

^

v

MAIN AC VOLTAGE

Main AC Voltage

Main AC Voltage Tag

Utility Mains

e.g Primary AC, Inverter etc.

☒ Main AC Voltage Alarm Enabled

Range: 65V - 270V

Voltage LOW

180

^

v

Voltage HIGH

260

^

v

AUX AC VOLTAGE

Auxiliary AC Voltage (Backup or Monitored AC)

AUX Voltage Tag

Inverter

e.g UPS, Solar etc.

☒ AUX AC Voltage Alarm Enabled

Range: 65V - 270V

Voltage LOW

200

^

v

Voltage HIGH

260

^

v

INTRUSION

Intrusion Alarm (Normally Closed)

☒ Intrusion Alarm Enabled

AMBIENT HUMIDITY

Ambient Sensor Humidity (1% Resolution)

☒ Ambient Humidity Alarm Enabled

Range: 20% - 80%

Humidity (%) LOW

20

^

v

Humidity (%) HIGH

80

^

v

TEMP PROBE 1

Temperature Probe 1 (0.5°C Resolution)

Temp Probe 1 Tag

Server cabinet

e.g PSU, Heatsink etc.

Temp Probe 1 Alarm Enabled

Range: -50°C - 120°C

Temperature (°C) LOW

-5

^

v

Temperature (°C) HIGH

65

^

v

TEMP PROBE 2

Temperature Probe 2 (0.5°C Resolution)

Temp Probe 2 Tag

Inverter Temp

e.g Server Cabinet, CPU etc.

Temp Probe 2 Alarm Enabled

Range: -50°C - 120°C

Temperature (°C) LOW

10

^

v

Temperature (°C) HIGH

80

^

v

WATER

Water Sensor

Water Alarm Enabled

SMOKE

Smoke Sensor

Smoke Alarm Enabled

ALARM RELAY

Onboard Alarm Relay (Auto Activated By Alarms)

Alarm Relay Tag

Strobe/Siren

e.g Siren + Light, Camera Trigger etc.

USER RELAY

Onboard User Controllable Relay

User Relay Tag

Reboot

e.g Generator, Aircon, Heater etc.

PULSE MODE

LATCH MODE

ETHERNET SETTINGS

Configure network settings

IP Address

192.168.1.2

Subnet Mask

255.255.255.0

Gateway

192.168.1.1

SNMP SETTINGS

Simple network management protocol V1 and V2 supported

SNMP Community String

public

DEVICE SECURITY SETTINGS

Define new web admin password. Leave empty to keep current password.

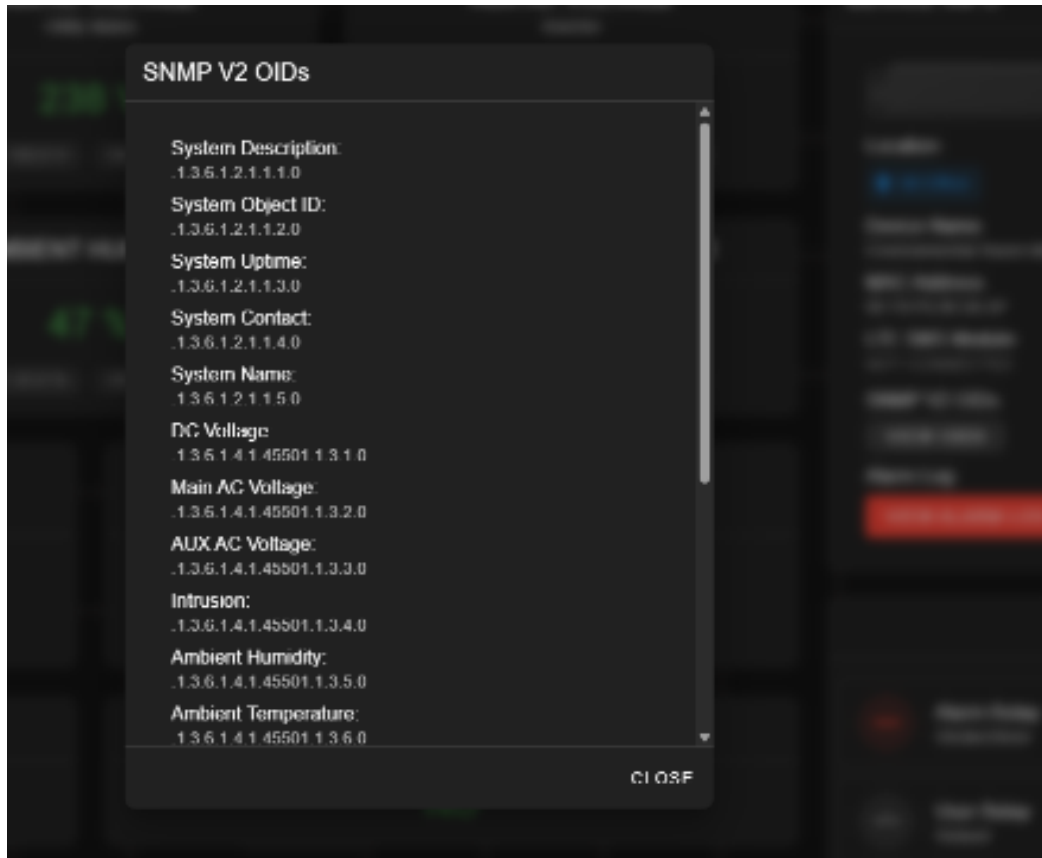
New Password

Confirm New Password

SAVE SETTINGS & REBOOT

8.SNMP OID Table

Available from Home page



SNMP OID Table (Available on Home Page)

Parameter	OID
System Description	.1.3.6.1.2.1.1.1.0
System Object ID	.1.3.6.1.2.1.1.2.0
System Uptime	.1.3.6.1.2.1.1.3.0
DC Voltage	.1.3.6.1.4.1.45501.1.3.1.0
Main AC Voltage	.1.3.6.1.4.1.45501.1.3.2.0
UPS AC Voltage	.1.3.6.1.4.1.45501.1.3.3.0
Intrusion	.1.3.6.1.4.1.45501.1.3.4.0
Ambient Humidity	.1.3.6.1.4.1.45501.1.3.5.0
Ambient Temperature	.1.3.6.1.4.1.45501.1.3.6.0
Temperature Probe 1	.1.3.6.1.4.1.45501.1.3.7.0
Temperature Probe 2	.1.3.6.1.4.1.45501.1.3.8.0

Result Table				
Name/OID	Value	Type	IP:Port	
.1.3.6.1.2.1.1.1.0	ERM6 V3	OctetString	192.168.1.2...	
.1.3.6.1.2.1.1.2.0	.1.3.6.1.4.1.45501	OctetString	192.168.1.2...	
.1.3.6.1.2.1.1.3.0	10 minutes 31 seconds (63108)	TimeTicks	192.168.1.2...	
.1.3.6.1.2.1.1.4.0	Micro Instruments (www.microinstruments.co.za)	OctetString	192.168.1.2...	
.1.3.6.1.2.1.1.5.0	Environmental Room Monitor V3	OctetString	192.168.1.2...	
.1.3.6.1.4.1.45501.1.3.1.0	12.33	OctetString	192.168.1.2...	
.1.3.6.1.4.1.45501.1.3.2.0	234	Integer	192.168.1.2...	
.1.3.6.1.4.1.45501.1.3.3.0	228	Integer	192.168.1.2...	
.1.3.6.1.4.1.45501.1.3.4.0	0	Integer	192.168.1.2...	
.1.3.6.1.4.1.45501.1.3.5.0	47	Integer	192.168.1.2...	
.1.3.6.1.4.1.45501.1.3.6.0	28	Integer	192.168.1.2...	
.1.3.6.1.4.1.45501.1.3.7.0	26.00	OctetString	192.168.1.2...	
.1.3.6.1.4.1.45501.1.3.8.0	26.00	OctetString	192.168.1.2...	
.1.3.6.1.4.1.45501.1.3.9.0	0	Integer	192.168.1.2...	
.1.3.6.1.4.1.45501.1.3.10.0	1	Integer	192.168.1.2...	
.1.3.6.1.4.1.45501.1.3.11.0	1	Integer	192.168.1.2...	
.1.3.6.1.4.1.45501.1.3.12.0	0	Integer	192.168.1.2...	
.1.3.6.1.4.1.45501.1.3.13.0	1	Integer	192.168.1.2...	
.1.3.6.1.4.1.45501.1.3.14.0	END	OctetString	192.168.1.2...	

9.DIMESNIONS

Dimensions

- **Main Unit (excluding rack mount brackets):**
 - **Length:** 250mm
 - **Width:** 73mm
 - **Height:** 45mm
 - **Weight:** 0.35kg

10.Kit includes

- 1 x ERM6 V3 main unit
- 2 x 19" Rack mount brackets with screws - can be mounted as compact version if no 19" rack available
- 1 x Magnetic door switch + connector
- 1 x Ambient Humidity and temperature sensor + connector
- 2 x Digital stainless steel temperature sensors + connectors
- 1 x Water sensor + connector
- 1 x Smoke sensor + connector
- 2 x AC power interface cables
- 1 x 220VAC to 19VDC power supply
- 1 x 10m 4 core signal cable

11. OPTIONAL EXTRAS

SMS module

ERM6 – SMS Module - LTE 4G SMS module + Antenna



BATTERY BACKUP

ERM6-BB = 12VDC @ 7Amp/h lithium battery backup unit for ERM6

User disconnects the 19VDC power supply from the ERM6 - connect the 19V to the ERM6-BB to charge and ERM6-BB feeds the ERM6 with uninterruptable power.

