Kidde Fire Systems

## REL-iON™ Battery Monitoring System

Kidde Fire Systems' REL-iON™ Battery Monitoring System is a modular sensor platform designed to detect potential failures in mission critical applications, such as Battery Energy Storage Systems (BESS), Switchgears, Data & Network infrastructure, etc.

With an array of over 80 detectors, capable of detecting thermal, environmental, power, and mechanical abuses, our platform delivers real-time data, empowering you to address anomalies proactively and preventing them from escalating into potentially devastating problems.

REL-iON™ Key Features Include:

- **Centralized Control** – SensorGateway: One single stand-alone IP-based control unit with built-in temperature sensor and multiple outputs, such as alerting via email and SMS, Wi-Fi connectivity, etc.

- **Expandable Modular Design** – SensorHub: A Plug-and-Play unit that expands the base control unit capacity from 2 to 8 ports and adds up to 8 dry-contact inputs and outputs for easy integration with third-party systems.

- **Flexible** – Over 80 detectors and add-on modules, allowing the system to be highly customizable and optimized to detect several different abuse sources and off-gassing events.

- **Easy to Install** – Plug-and-Play, Power Over Ethernet (PoE) network architecture, using off-the-shelf RJ45 CAT6/7 cable.

- **Easy to Integrate** – In addition to dry-contact outputs, the system can be configured to be integrated with third-party systems through several different protocols, including Modbus TCP and RTU, and multiple IoT-based platforms.

- **Wide range of applications – broad opportunity for:**
    - Battery Energy Storage Systems (BESS)
    - Switchgears
    - Data & Network infrastructure
    - Others
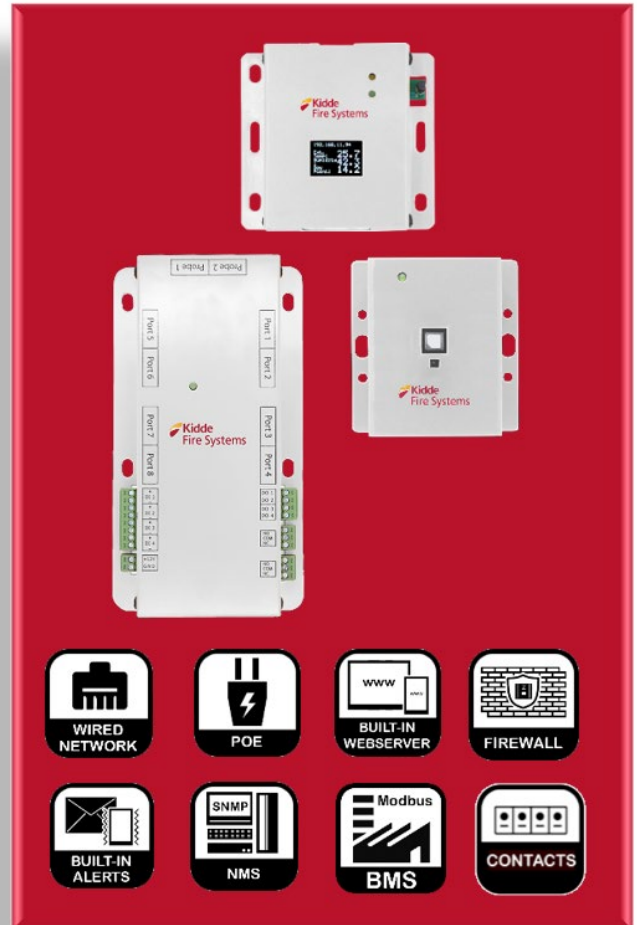
- **Specify and ship worldwide with confidence; Globally certified by:**
    - UL Listed [*]
    - FCC*
    - CE Certified*
    - ISO*

      * Where applicable

Li-ion Batteries - 4 Phases of Failure

In recent years, lithium-ion energy storage systems have become increasingly popular due to their impressive energy density and extended lifespan. Nevertheless, these systems are not without their share of risks, with one significant concern being the potential occurrence of thermal runaway events. Thermal runaway is a situation in which the internal temperature of a lithium-ion battery experiences a rapid increase, resulting in the emission of gases and a subsequent rise in pressure. If left unattended, this process can culminate in explosions or fires.

Stage 1
Stage 1 prevention involves the continuous monitoring of various factors, including environmental conditions, mechanical stress, power fluctuations, and thermal conditions. This early monitoring is crucial to prevent potential failures and to optimize the overall lifespan of the battery. Our platform excels in detecting anomalies and guiding you with preventive measures to circumvent thermal runaway incidents, ultimately extending the battery's operational lifespan. It's an all-in-one solution meticulously tailored for this stage.

Stage 2
Just before a complete thermal runaway occurs, malfunctioning lithium-ion batteries will vent gases as a result of internal pressure build-up, leading to the rupture of the battery's enclosure. This marks the onset of Stage 2. During this critical phase, you have only a matter of seconds to a few minutes, at most, to react. You may already have one or more battery cells experiencing catastrophic failures. The primary objective at this point is to contain the spread of a thermal runaway event. Our innovative platform extends off-gas detection beyond just electrolytes' off-gassing, incorporating the analysis of CO_2 gas. In several instances of initial venting or off-gas events, CO_2 emerges as the pivotal and most consistent gas signal.

Stages 3 & 4
If a fire occurs, Kidde Fire Systems' smoke detection and clean agent fire suppression solutions are always standing guard to protect your assets for minimum business disruption.
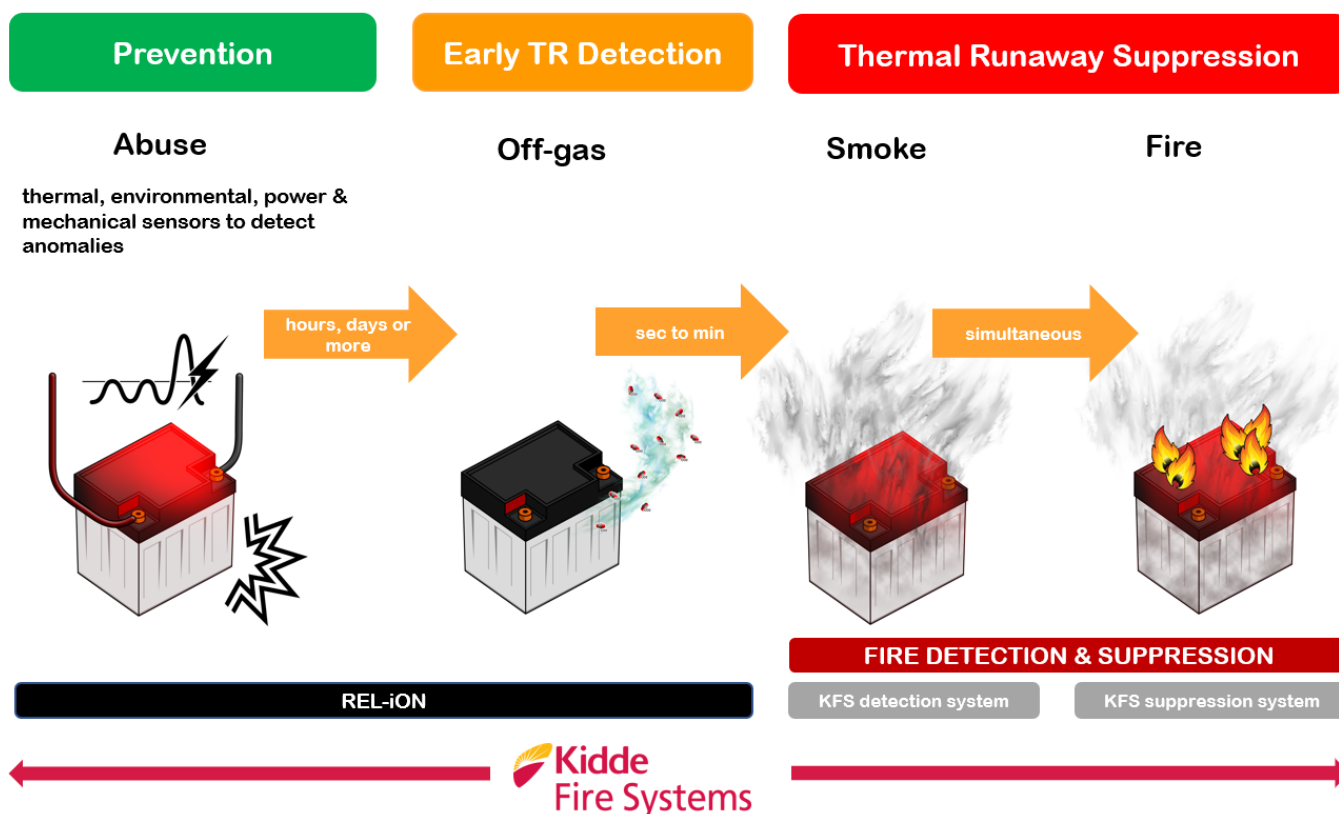
Multi-Point Monitoring Architecture

To mitigate the risk of thermal runaway events, a crucial approach involves the utilization of sensors capable of detecting off-gases or initial venting occurrences. The optimal sensor for this task is one that can identify both carbon dioxide (CO_2) and volatile organic compounds (VOCs).

Moreover, when employing liquid cooling for your batteries, it is imperative to include a Hydrogen (H_2) sensor. In such cases, battery leaks can occur at typical operating temperatures, releasing H_2 gas before any other gas.

K-31-001

Effective: October 2023

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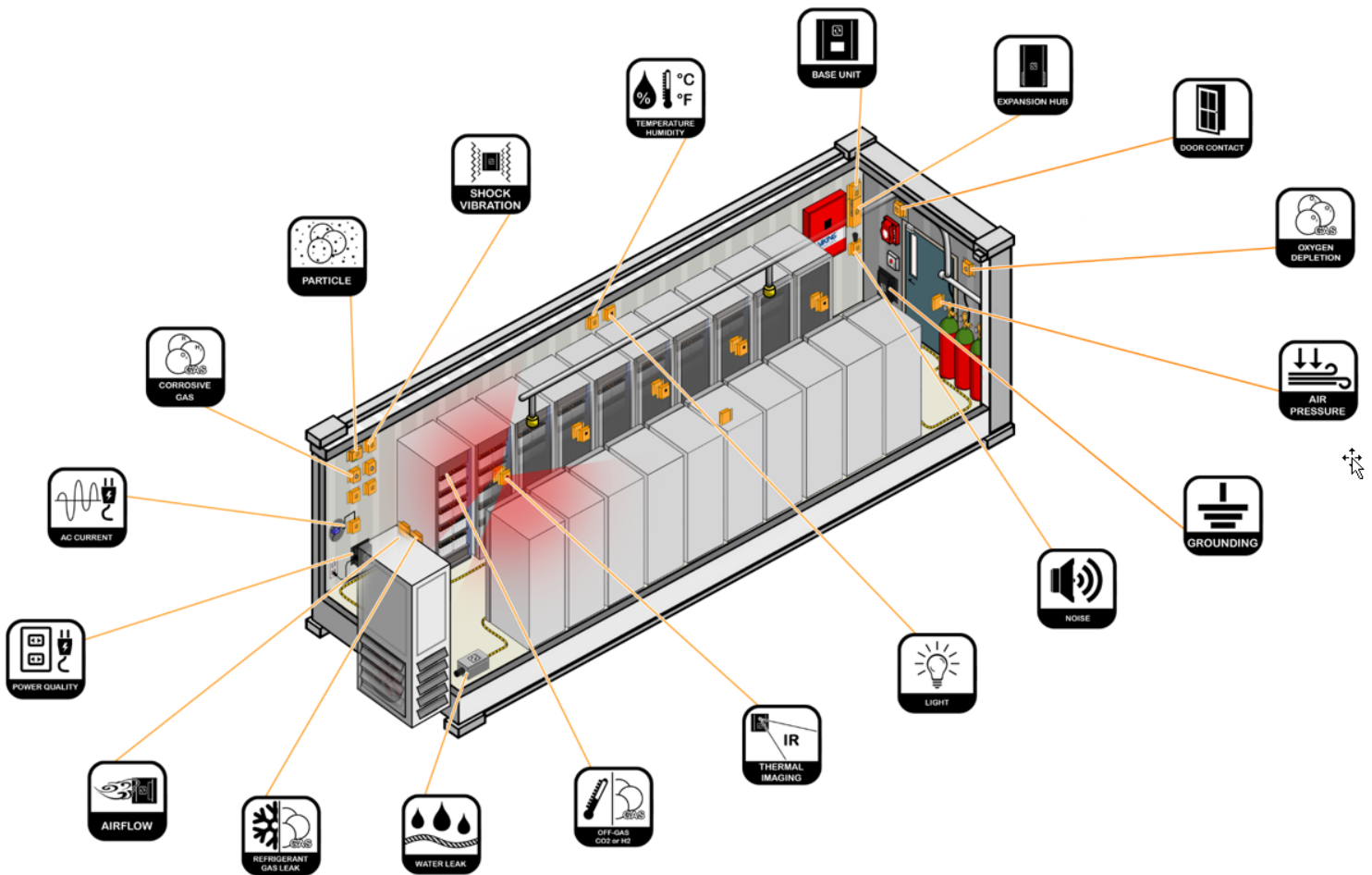
Component Description

SensorGateway (31-BASE-WIRED)

The Sensor Gateway is a stand-alone IP-based temperature sensor with built-in alerting features and serves as the base unit for our solution.

Key Features:
- Onboard temperature sensor
- Built-in web server
- Alerting via email, voice call or SMS
- DHCP or static IP
- 0U and DIN mountable
- Ultra-low power usage
- No Internet connectivity required to operate
- Stand-alone device: no software needed
- Fully responsive web interface for desktop, tablet, or smart phone
- User-configurable firewall for enhanced security
- Industrial grade: UL Listed, FCC and CE certified

Technical Specifications

TCP/IP:	IPv4 at 10/100 Mbps.
Power Source:	PoE: IEEE 802.3af or BASE-PWR (Optional AC power adapter) or BASE-PWR-USB (USB power adapter)
Power Usage:	1500mW (without sensors attached)
Network Data Transfer	SNMP GET (50 - 130 bytes), SNMP Trap (143 - 280 bytes)
Built-in:	Web server (JSON and XML), SNMP v1, v2 & v3 (MD5/AES), Modbus TCP.
Built-in alerting options:	Email, SMS (over IP) & SNMP Traps.
External sensor probes:	2 sensor probes through straight RJ45 CAT6/7 cable with max distance of 100m or 330ft
Max distance to switch:	CAT6/CAT7 up to 100m / 300ft.
Temperature Resolution:	0.1°C / 0.18°F
Temperature Reading:	-55°C to +125°C (-67°F to +257°F)
Temperature Accuracy:	± 1°C (± 2°F) over 0°C to +75°C
Operating temperature range	0°C to +75° C (32°F to +167°F)
Humidity (operating and storage)	< 90% RH (non-condensing)
Dimensions	95 mm (3.7") x 88 mm (3.4") x 21 mm (0.8")
Weight	0.21 kg (0.46 lbs)

SensorHub (31-EXP-8HUB)

Expands the base unit from 2 to 8 ports and adds control capabilities.

Key Features:
- Plugs into the base unit with max length of 1m (31-BASE-WIRED)
- Powered by the base unit (31-BASE-WIRED)
- 4 dry contact outputs and 2 relay outputs for automatic control
- Maximum 1 expansion hub per base unit

Technical Specifications

Power Source:	SensorGateway (31-BASE-WIRED)
Power Usage	588mW
Expansion ports for external sensor probes	8
Dry contact input ports	4
Dry contact output ports	4 (digital sink 100mA)
Relay outputs	2 (400VAC/150VDCand 200VA/192W)
Auxiliary supply	maximum current capacity of 500mA at 9 to 12 VDC
Temperature Resolution:	0.1°C / 0.18°F
Operating temperature range	0°C to +75°C (32°F to +167°F)
Humidity (operating and storage)	< 90% RH (non-condensing)
Dimensions	165mm (6.5") x 95mm (3.7") x 22mm (0.8")
Weight	0.57 kgs (1.26 lbs.)

VOC, Temperature and Humidity Sensor (31-OEM-STD-OFFGAS-LITE)

Designed for monitoring off-gas in battery systems. Measures Volatile Organic Compound (VOC), Temperature and Humidity.

Key Features:
- Powered by the base unit (31-BASE-WIRED)
- Compact Plug-and-Play sensor
- 0U rack or wall mountable
- Steel enclosure, industrial grade
- Alerts via SNMP Traps, email, SMS, or voice calls
- Also available as a daisy chained version (31-OEM-DAISY-OFFGAS-LITE)
- UL Listing 61010
- ISO17025 certified for temperature sensor.
- Requires the 31-BASE-FW-SSLS firmware add-on for the 31-BASE-WIRED

Technical Specifications

Power Source:	SensorGateway (31-BASE-WIRED)
Power Usage	360 mW
VOC measurement output range	0 – 500 VOC Index
VOC repeatability	<±5 VOC index points
Temperature measurement range	- 40°C to 125°C
Temperature accuracy	± 0.48 °C
Relative humidity measurement range	0 to 100 % RH
Relative humidity accuracy	2% RH
Life Span	min 10 years
Operating temperature range	-30°C to +70°C (-22°F to +94°F)
Humidity (operating and storage)	< 90% RH (non-condensing)
Dimensions	72.96 mm (2.87") x 68.8 mm (2.7") x 29.41 mm (1.16")
Weight	0.13kg (0.29 lbs)
Maximum length of daisy chain (for daisy chain model)	10 sensors per base unit within 100m/330ft of total length Longer distances possible with optional DAISY-BOOSTER

CO2, VOC, Temperature and Humidity Sensor (31-OEM-OFFGAS)

Designed for monitoring off-gas in battery systems. Measures CO2, Volatile Organic Compound (VOC), Temperature and Humidity.

Key Features:
- Powered by the base unit (31-BASE-WIRED)
- Compact Plug-and-Play sensor
- 0U rack or wall mountable
- Steel enclosure, industrial grade
- Alerts via SNMP Traps, email, SMS, or voice calls
- Also available as a daisy chained version (31-OEM-DAISY-OFFGAS)
- Requires the 31-BASE-FW-SSLS firmware add-on for the 31-BASE-WIRED

Technical Specifications

Power Source:	SensorGateway (31-BASE-WIRED)
Power Usage	360 mW
CO2 output range	0 – 40,000 ppm
CO2 measurement accuracy	± 40 ppm
CO2 repeatability	± 10 ppm
VOC measurement output range	0 – 500 VOC Index
VOC repeatability	<±5 VOC index points
Temperature measurement range	- 10°C to 60°C
Temperature accuracy	± 0.8 °C
Relative humidity measurement range	0 to 100 % RH
Relative humidity accuracy	15 °C – 35 °C, 20 %RH – 65 %RH = ±6 %RH
Life Span	min 10 years
Operating temperature range	0°C to +50°C (32°F to +122°F)
Humidity (operating and storage)	< 90% RH (non-condensing)
Dimensions	71.1 mm (2.8") x 67 mm (2.6") x 23 mm (0.9")
Weight	0.13kg (0.29 lbs)
Maximum length of daisy chain	10 sensors per base unit within 100m/330ft of total length Longer distances possible with optional DAISY-BOOSTER

Calibration Free - VOC, H2, Temperature and Humidity Sensor (31-OEM-STD-OFFGAS-H2)

Designed for monitoring off-gas in battery systems. Measures Volatile Organic Compound (VOC), Hydrogen (H2) levels, Temperature and Humidity.

Key Features:
- Powered by the base unit (31-BASE-WIRED)
- Compact Plug-and-Play sensor
- 0U rack or wall mountable
- Steel enclosure, industrial grade
- Alerts via SNMP Traps, email, SMS, or voice calls
- Also available as a daisy chained version
- ISO17025 certified for temperature sensor
- Requires the 31-BASE-FW-SSLS firmware add-on for the 31-BASE-WIRED
- No calibration required

Technical Specifications

Power Source:	SensorGateway (31-BASE-WIRED)
Power Usage	360 mW
VOC measurement output range	0 – 500 VOC Index
VOC repeatability	<±5 VOC index points
VOC response time (T63)	3s
H2 detection range	0-100% LEL
H2 accuracy	±5% LEL
H2 response time (T90)	<30s
Temperature measurement range	- 40°C to 125°C
Temperature accuracy	± 0.48 °C
Relative humidity measurement range	0 to 100 % RH
Relative humidity accuracy	2 %RH
Life Span	min 10 years
Dimensions	71.1 mm (2.80") x 68.8 mm (2.71") x 28.8 mm (1.13")
Weight	0.13kg (0.29 lbs)

H2 Sensor (31-GAS-H2)

Digital SNMP & Modbus TCP sensor designed for monitoring 24x7 hydrogen (H2) levels and detect leaks from lead acid and Li-ion battery banks.

Key Features:
- Powered by the base unit (31-BASE-WIRED)
- Compact Plug-and-Play sensor
- 0U rack or wall mountable
- Proven sensor component made in Japan
- Alerts via SNMP Traps, email, SMS, or voice calls
- Lab-calibrated against 50-percent reference gas

Technical Specifications

Power Source:	SensorGateway (31-BASE-WIRED)
Power Usage	948 mW
Hydrogen level	0 to 100% LEL
Maximum detection	40,000 H2 ppm (=100% LEL)
Lifetime	10 years
Operating temperature range	0°C to +70°C (32°F to +158°F)
Humidity (operating and storage)	< 90% RH (non-condensing)
Dimensions	71.5 mm (2.8") x 68 mm (2.7") x 31 mm (1.2")
Weight	0.12kg (0.26 lbs)

Thermal Image IR Sensor (31-ENV-THIMG-L)
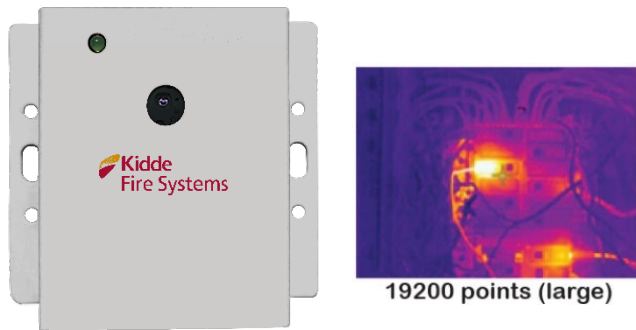
19200 points (large)

The thermal camera sensors provide you with the temperature of the objects and equipment it sees. The world's first SNMP & Modbus thermal camera sensor that tells you the temperature of what it sees. 19200 temperature measurement points are provided in one image, analyzed every 2 seconds. Minimum and maximum temperature data is available to industrial and IT automation platforms via Modbus TCP or SNMP.
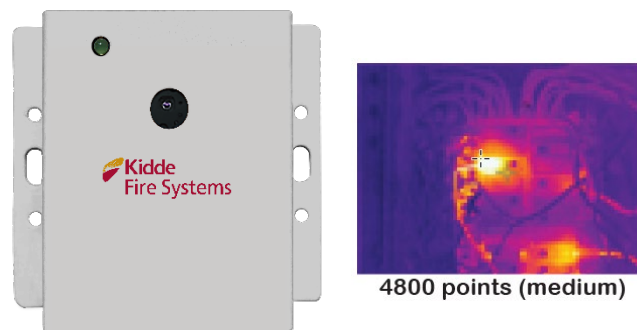
Key Features:
- Powered by the base unit (31-BASE-WIRED)
- 0U rack or wall mountable
- Readings in Celsius or Fahrenheit
- Can detect object temperature from -10°C to 450°C
- Up to 5 thermal camera sensors supported per SensorHub
- Outputs minimum and maximum temperatures per zone
- Can add up to 4 zones
- Requires the 31-BASE-FW-SSLS firmware add-on for the 31-BASE-WIRED

Technical Specifications

Power Source:	SensorGateway (31-BASE-WIRED)
Power Usage	492 mW
Scene dynamic range	High gain mode (lower temperature): -10°C to 140°C (14°F to 284°F) Low gain mode (higher temperature): -10°C to 450°C (14°F to 842°F)
Temperature accuracy	High gain mode (lower temperature): ± 5°C or 5% Low gain mode (higher temperature): ± 10°C or 10%
Field of View (FoV)	56° horizontal(narrow) 71° diagonal
Resolution	160x120 pixels
Operating temperature range	-10°C to +65°C (14°F to +149°F)
Humidity (operating and storage)	< 90% RH (non-condensing)
Dimensions	71.5 mm (2.8") x 68 mm (2.7") x 23 mm (0.9")
Weight	0.112kg (0.25 lbs)

Thermal Image IR Sensor (31-ENV-THIMG-M)

4800 points (medium)

The thermal camera sensors provide you with the temperature of the objects and equipment it sees. The world's first SNMP & Modbus thermal camera sensor that tells you the temperature of what it sees. 4800 temperature measurement points are provided in one image, analyzed every 2 seconds. Minimum and maximum temperature data is available to industrial and IT automation platforms via Modbus TCP or SNMP.
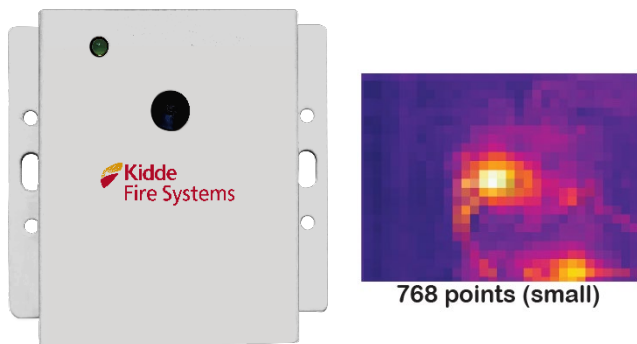
Key Features:
- Powered by the base unit (31-BASE-WIRED)
- 0U rack or wall mountable
- Readings in Celsius or Fahrenheit
- Can detect object temperature from -10°C to 450°C
- Up to 5 thermal camera sensors supported per SensorHub
- Outputs minimum and maximum temperatures per zone
- Can add up to 4 zones
- Requires the 31-BASE-FW-SSLS firmware add-on for the 31-BASE-WIRED

Technical Specifications

Power Source:	SensorGateway (31-BASE-WIRED)
Power Usage	492 mW
Scene dynamic range	High gain mode (lower temperature): -10°C to 140°C (14°F to 284°F) Low gain mode (higher temperature): -10°C to 450°C (14°F to 842°F)
Temperature accuracy	High gain mode (lower temperature): ± 5°C or 5% Low gain mode (higher temperature): ± 10°C or 10%
Field of View (FoV)	51° horizontal(narrow) 63° diagonal
Resolution	80 x 60 pixels
Operating temperature range	-10°C to +65°C (14°F to +149°F)
Humidity (operating and storage)	< 90% RH (non-condensing)
Dimensions	71.5 mm (2.8") x 68 mm (2.7") x 23 mm (0.9")
Weight	0.112kg (0.25 lbs)

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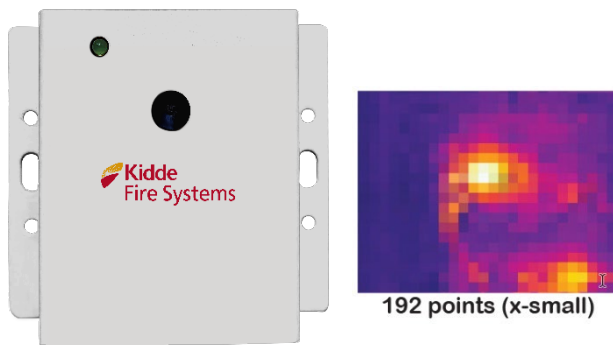## Thermal Image IR Sensor (31-ENV-THIMG-S)

768 points (small)

The thermal camera sensors provide you with the temperature of the objects and equipment it sees. The world's first SNMP & Modbus thermal camera sensor that tells you the temperature of what it sees. 768 temperature measurement points are provided in one image, analyzed every 2 seconds. Minimum and maximum temperature data is available to industrial and IT automation platforms via Modbus TCP or SNMP.

Key Features:
- Powered by the base unit (31-BASE-WIRED)
- 0U rack or wall mountable
- Readings in Celsius or Fahrenheit
- Can detect object temperature from -40°C to 300°C
- Up to 5 thermal camera sensors supported per SensorHub
- Outputs minimum and maximum temperatures per zone
- Can add up to 4 zones
- Requires the 31-BASE-FW-SSLS firmware add-on for the 31-BASE-WIRED

Technical Specifications

Power Source:	SensorGateway (31-BASE-WIRED)
Power Usage	492 mW
Scene dynamic range	-40°C to 300°C (-40°F to 572°F)
Temperature accuracy	± 1.5°C (± 1.8°F)
Field of View (FoV)	110° horizontal(wide) 75° vertical
Resolution	32 x 24 pixels
Operating temperature range	-10°C to +85°C (14°F to +185°F)
Humidity (operating and storage)	< 90% RH (non-condensing)
Dimensions	71.5 mm (2.8") x 68 mm (2.7") x 23 mm (0.9")
Weight	0.112kg (0.25 lbs)

Thermal Image IR Sensor (31-ENV-THIMG-XS)

192 points (x-small)

The thermal camera sensors provide you with the temperature of the objects and equipment it sees. The world's first SNMP & Modbus thermal camera sensor that tells you the temperature of what it sees. 192 temperature measurement points are provided in one image, analyzed every 2 seconds. Minimum and maximum temperature data is available to industrial and IT automation platforms via Modbus TCP or SNMP.

Key Features:
- Powered by the base unit (31-BASE-WIRED)
- 0U rack or wall mountable
- Readings in Celsius or Fahrenheit
- Can detect object temperature from -40°C to 300°C
- Up to 5 thermal camera sensors supported per SensorHub
- Outputs minimum and maximum temperatures per zone
- Can add up to 4 zones
- Requires the 31-BASE-FW-SSLS firmware add-on for the 31-BASE-WIRED

Technical Specifications

Power Source:	SensorGateway (31-BASE-WIRED)
Power Usage	492 mW
Scene dynamic range	-40°C to 300°C (-40°F to 572°F)
Temperature accuracy	± 1.5°C (± 1.8°F)
Field of View (FoV)	110° horizontal(wide) 75° vertical
Resolution	16 x 12 pixels
Operating temperature range	-10°C to +85°C (14°F to +185°F)
Humidity (operating and storage)	< 90% RH (non-condensing)
Dimensions	71.5 mm (2.8") x 68 mm (2.7") x 23 mm (0.9")
Weight	0.112kg (0.25 lbs)

Water Leak Sensor (31-ENV-LEAK-5M)

Designed to monitor for leaks or presence of water inside your critical facility.

Key Features:
- Powered by the base unit (31-BASE-WIRED)
- Alerts via SNMP Traps, email, SMS or voice calls
- Expandable up to 200m/656ft per sensor
- The sensing cables are resistant to corrosion and abrasion
- Reusable sensing cable
- Triggers an alert within 1-2 seconds when water touches the sensing cable
- Sensing cables are approved for installation in ordinary and hazardous areas

Technical Specifications

Power Source:	SensorGateway (31-BASE-WIRED)
Power Usage	364 mW
Water Detection Response	1 – 2 seconds
Resetting time	Cable dries and resets within 5 seconds of removal from standing water
Cable cleaning method	Wipe with clean damp cloth
Cable breaking strength (Including connectors)	70lbs/32kg
Data Output	Provides a WET/DRY indication in SensorGateway
Operating temperature range	0°C to + 75°C (32°F to +167°F)
Sensor Housing Material & cable gland protection rating	IP68
Dimensions	65mm (2.56") x 95mm (3.74") x 55mm (2.17")
Weight	0.17kg (0.37 lbs)

Air Particle Sensor (31-ENV-PARTICLE)

Designed to provide added value to applications in several industries, including air quality monitoring, air purifiers and HVAC.

Key Features:
- Powered by the base unit (31-BASE-WIRED)
- 0U Rack or wall mountable sensor
- Alerts via SNMP Traps, email, SMS or voice calls
- Measures total mass concentration values for PM1, PM2.5, PM4 and PM10 in µg/m³
- MCERTS-Certified

Technical Specifications

Power Source:	SensorGateway (31-BASE-WIRED)
Power Usage	156 mW
Mass concentration range:	0 – 1000 µg/m³
Particle detection size range:	Mass concentration: PM1.0, PM2.5, PM4 and PM10 Number concentration: PM0.5, PM1.0, PM2.5, PM4 and PM10
Mass concentration precision:	PM1 and PM2.5: ±10 µg/m³ @ 0 to 100 µg/m³ ±10 % @ 100 to 1000 µg/m³
	PM4 and PM10: ±25 µg/m³ @ 0 to 100 µg/m³ ±25 % @ 100 to 1000 µg/m³
Maximum long-term mass concentration precision limit drift:	±1.25 µg/m3 @ 0 to 100 µg/m³ ±1.25 % @ 100 to 1000 µg/m³
Lower limit detection:	0.3 µm
Lifetime:	10 years operating 24hrs/day
Acoustic emission level:	25dB(A) @ 0.2m
Long term acoustic emission level drift:	+0.5dB(A)/year @ 0.2m
Sampling interval:	1 ± 0.04s
Operating temperature range	-10°C to 60°C (14°F to 140°F) in PoE mode
Storage temperature range:	-40°C to 70°C (-40°F to 158°F)
Humidity (operating and storage)	< 90% RH (non-condensing)
Recommended temperature and humidity range:	10°C to 40°C and 20% to 80% RH
Dimensions	88.8mm (3.5") x 51mm (2") x 32.5mm (1.28")
Weight	0.14kg (0.31 lbs)

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Ground Sensor (31-PWR-GROUND)

The Grounding Monitoring system connects to your site electrical ground system for continuous monitoring of the grounding's resistance.

Key Features:
- Powered by the base unit (31-BASE-WIRED).
- 0U Rack or wall mountable sensor.
- Monitors up to 3 different ground systems.
- Cabling through fuse cables.
- Measures resistance in Ohms.
- Terminal connectors for wires from 26 up to 16 AWG (solid/stranded).

Technical Specifications

Power Source:	SensorGateway (31-BASE-WIRED)
Power Usage	36 mW
Range:	0 to 5000 Ohms
Injected current	0.7 mA
Ground metering points	3 different ground terminals
IO isolation	1000 V AC
Operating temperature range	0°C to +75°C (32°F to +167°F)
Humidity (operating and storage)	< 90% RH (non-condensing)
Dimensions	107 mm (4.2") x 90 mm (3.5") x 26 mm (1.02")
Weight	0.117 kg (0.26 lbs)

Atmospheric Corrosion Sensor (31-ENV-CORROSION)

This non-intrusive Plug-and-Play corrosion sensor empowers OEMs in mission-critical industries to effectively monitor and manage corrosion levels, allowing them to maintain the performance, reliability, and safety of their equipment and infrastructure.

Key Features:
- Powered by the base unit (31-BASE-WIRED).
- 0U Rack or wall mountable sensor.
- Alerts via SNMP Traps, email, SMS, or voice calls.
- Design based on ANSI / ISA 71.04-2013 standard.

Technical Specifications

Power Source:	SensorGateway (31-BASE-WIRED)		
Power Usage	260 mW		
Corrosion measurement range (Copper):	Category	Severity	Copper
	G1	Mild	<300 Å
	G2	Moderate	<1,000 Å
	G3	Harsh	<2,000 Å
	GX	Severe	>2,000 Å
Corrosion measurement range (Silver):	Category	Severity	Silver
	G1	Mild	<200 Å
	G2	Moderate	<1,000 Å
	G3	Harsh	<2,000 Å
	GX	Severe	>2,000 Å
Operating temperature range	0°C to +75°C (32°F to +167°F)		
Humidity (operating and storage)	< 90% RH (non-condensing)		
Dimensions	72.96 mm (2.87") x 68.8 mm (2.7") x 29.41 mm (1.16")		
Weight	0.13 kg (0.29 lbs)		

Daisy Chain Starter (31-DAISY-STARTER)

The 31-DAISY-STARTER connects the daisy chain sensors to the base unit.

Key Features:
- Powered by the base unit (31-BASE-WIRED)
- 0U Rack or wall mountable sensor
- Steel enclosure, industrial grade
- Alerts via SNMP Traps, email, SMS, or voice calls
- Up to 1x DAISY-STARTER per base unit
- Allows the connection of up to 48 daisy-chained
  sensors, depending on the sensor type
- Displays number of daisy chain sensors connected

Technical Specifications

Power Source:	SensorGateway (31-BASE-WIRED), power adapter 12V 2A is required for more than 10 Sensors
Power Usage	288 mW
Operating temperature range	0°C to +75°C (32°F to +167°F)
Humidity (operating and storage)	< 90% RH (non-condensing)
Dimensions	73 mm (2.9") x 68 mm (2.7") x 23 mm (0.9")
Weight	0.11 kg (0.25 lbs)

Parts List

Description	Part Number
Base Units and Add-Ons	
Base Unit SensorGateway	31-BASE-WIRED
Multi-Sensor & 4 Ports Hub	31-EXP-4HUB
SensorHub - 8 Ports Hub	31-EXP-8HUB
Wireless (LoRa) Hub	31-EXP-LWHUB
LTE/3G/2G Mobile Add-On with Dual SIM	31-ADDON-LTE
24v / -48v DC to PoE Converter (Industrial & Telecom)	31-ADDON-POE
Modbus RTU Slave Add-On	31-ADDON-RTU
Wi-Fi Add-On for Base Unit	31-ADDON-WIFI
Power Adapter for Base Unit	31-BASE-PWR
USB Power Cable for SensorGateway	31-BASE-PWR-USB
Firmware addon required for GAS, THIMG and OFFGAS sensors	31-BASE-FW-SSLS
Wireless Node for sensors	31-NODE-LW-1P
GPS Antenna for ADDON-LTE	31-SPARE-GPS-ANT
Sensors	
IR Spot Sensor Calibration	31-CAL-IRSPOT
Temperature Sensor Calibration	31-CAL-TEMP
Thermal Image Camera Sensor Calibration	31-CAL-THIMG
Temperature & Humidity Sensor Calibration	31-CAL-THUM
Daisy Chain Voltage Booster	31-DAISY-BOOSTER
Daisy Chained - Infrared Spot Temperature	31-DAISY-IRSPOT
Starter for Daisy Chain Sensors	31-DAISY-STARTER
Daisy Chained - Temperature	31-DAISY-TEMP
Daisy Chained – Temperature & Humidity	31-DAISY-THUM
Digital Airflow Sensor Probe	31-ENV-AIRFLOW
Differential Air Pressure Sensor with built-in temperature sensor	31-ENV-AIRPRESSURE
5m extension cable for battery leak sensor	31-ENV-BLEAK-5M
Battery Leak Sensor Probe with 5m detection cable	31-ENV-BLEAK-COMBO
ACM corrosion sensor	31-ENV-CORROSION
Indoor Dust Particle Sensor Probe	31-ENV-DUST
5m extension cable for fuel leak sensor	31-ENV-FLEAK-5M
A1 Refrigerant Gas Sensor (R134A)	31-GAS-A1
A2L Refrigerant Gas Sensor (R-32 - R-1234yf)	31-GAS-A2L
A3 Refrigerant Gas Sensor (R-290 - R-404a R-410a)	31-GAS-A3
Methane Gas Sensor	31-GAS-CH4

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Description	Part Number
Sensors (continued)	
Chlorine (CL2) Gas Sensor	31-GAS-CL2
Carbon Monoxide (CO) Gas Sensor	31-GAS-CO
Carbon Dioxide (CO2) Gas Sensor (CMOS)	31-GAS-CO2
Carbon Dioxide (CO2) Gas Sensor (NDIR)	31-GAS-CO2-NDIR
Hydrogen Gas Sensor	31-GAS-H2
Hydrogen Sulfide (H2s) Gas Sensor	31-GAS-H2S
Hydrogen Chloride (HCL) Gas Sensor	31-GAS-HCL
Hydrogen Fluoride (HF) Gas Sensor	31-GAS-HF
Ammonium Nitrate (NH3) Gas Sensor	31-GAS-NH3
Nitrogen Dioxide (NO2) Gas Sensor	31-GAS-NO2
Oxygen (O2) Gas Sensor	31-GAS-O2
Ozone (O3) Gas Sensor	31-GAS-O3
R-134a Refrigerant Gas Sensor	31-GAS-R134A
R-32 Refrigerant Gas Sensor	31-GAS-R32
Radon Gas Sensor	31-GAS-RADON
SF6 Gas Leak Sensor	31-GAS-SF6
Sulfur Dioxide (SO2) Gas Sensor	31-GAS-SO2
Infrared Spot Temperature - FOV 5degr	31-ENV-IRSPOT-05
Infrared Spot Temperature - FOV 12degr	31-ENV-IRSPOT-12
Infrared Spot Temperature - FOV 35degr	31-ENV-IRSPOT-35
Leak Sensor WITHOUT cables	31-ENV-LEAK
Water Leak Location Sensor WITHOUT cables	31-ENV-LEAK-LOC
Optical Oil Leak Sensor	31-ENV-LEAK-OPTICAL-H
Noise & Sound dBA Sensor Probe	31-ENV-NOISE
Air Particle Sensor (PM1 - 2.5 - 4 and PM10)	31-ENV-PARTICLE
Temperature Sensor	31-ENV-TEMP
Thermal Image Sensor Large - 160*120	31-ENV-THIMG-L
Thermal Image Sensor Medium - 80*60	31-ENV-THIMG-M
Thermal Image Sensor Small - 32*24	31-ENV-THIMG-S
Thermal Image Sensor Extra-Small - 16*12	31-ENV-THIMG-XS
Temperature and Humidity Sensor	31-ENV-THUM
Stainless Steel Temperature Sensor (-55C +125C)	31-ENV-TSTAIN
Surface Temperature Sensor	31-ENV-TSURFACE
Ultra Low Temperature Sensor (-200C to +550C)	31-ENV-TULTRA

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Description	Part Number
Sensors (continued)	
VOC Sensor	31-ENV-VOC
VOC & NOx Sensor	31-ENV-VOC-NOX
20m water detection cable (US version)	31-ENV-WLEAK-20M
20m water detection cable (INT version)	31-ENV-WLEAK-20M-CS
16ft / 5m water detection cable	31-ENV-WLEAK-5M
16ft / 5m water detection cable (INT version)	31-ENV-WLEAK-5M-CS
Leak Sensor with 16ft/5m water detection cable	31-ENV-WLEAK-COMBO5M
Leak Sensor with 16ft/5m water detection cable	31-ENV-WLEAK-COMBO5M-CS
Leak Location Sensor with 16ft/5m water detection cable	31-ENV-WLEAK-LOC-COMBO5
Water Spot Sensor	31-ENV-WSPOT
IO Sensor Probe - Dry Contact - 16 IN & 4 OUT	31-IND-IO
250A Split Core Current Transducer	31-PWR-AC-CT-250A
AC Current Sensor Probe max 100A (110-240v)	31-PWR-AC-CUR
AC Power Failure Sensor Probe (110v-240v)	31-PWR-AC-FAIL
3 Phase Power Meter with CT Connection	31-PWR-AC-METER3
AC Power Quality Sensor (110v-240v)	31-PWR-AC-QUAL
AC Power Failure & Voltage Sensor (110v-240v)	31-PWR-AC-VOLT
Battery Cell Module	31-PWR-BAT-CELL
Battery String Module with CT Transducer (300A)	31-PWR-BAT-STRING
DC Current Transducer Max 300A	31-PWR-DC-CUR
DC Power Failure Sensor Probe (12-48v DC)	31-PWR-DC-FAIL
DC Power Voltage Sensor 0-56v DC	31-PWR-DC-VOLT
Ultrasonic Fuel Level Probe IP68 Housing	31-PWR-FUEL
Grounding Sensor	31-PWR-GROUND
Door Contact Security Sensor	31-SEC-DOOR
Light (Lux) Sensor	31-SEC-LUX
Motion Sensor	31-SEC-MOTION
Vibration & Shock Sensor Probe	31-SEC-SHOCK
Smoke Sensor UL	31-SEC-SMOKE
Security Sound dB Sensor Probe	31-SEC-SOUND
3-Axis Tilting Sensor	31-SEC-TILT
Carbon Dioxide (CO2) & VOC & H2 Off-Gas Sensor	31-OEM-STD-OFFGAS-H2
Carbon Dioxide (CO2) & VOC Off-Gas Sensor, Daisy Chained	31-OEM-DAISY-OFFGAS
Carbon Dioxide (CO2) & VOC Off-Gas Sensor	31-OEM-STD-OFFGAS
VOC Only Off-Gas Sensor	31-OEM-STD-OFFGAS-LITE

Description	Part Number
Mounting Accessories	
Magnetic Ball Mount for ENV-THIMG-L M S or XS	31-SPARE-BALLMOUNT
DIN Rail Mounting Clips (2)	31-SPARE-DIN-CLIP
DIN Rail Base Plate with Clips (2) for Sensors	31-SPARE-DIN-PLATE
Adapter for Gas Sensor to perform bump tests (excl H2 - R134a)	31-SPARE-GAS-GEN-BUMP
Adapter for H2 Sensor to perform bump tests	31-SPARE-GAS-H2-BUMP
U Clips for holding leak sensing cables (6 per pack)	31-SPARE-LEAK-CLIP
2 Magnets with 3M Self Adhesive for sensors or base unit.	31-SPARE-MAGNET
International Power Plug Clips for BASE-PWR or PWR-FAIL (US/EU/UK/AU)	31-SPARE-PWR-INTL
0.5m/19in RJ-45 CAT5e network cable	31-SPARE-RJ45

Description	Part Number
Software	
Monitoring Software Only (to run on your own systems)	31-MON-SOFTWARE
ServersCheck Touch Appliance v2 - incl Monitoring Software	31-MON-TOUCH2
ServersCheck Touch Appliance v2 with LTE - incl Monitoring Software	31-MON-TOUCH2-LTE

IMPORTANT NOTE:

The products depicted in this datasheet are convenient tools to be used as an ancillary system for early warning detection of anomalies which may lead to events requiring additional and separate life safety protection. REL-iON is not intended as a primary notification means of a fire or for notification of emergency response personnel or mass evacuation to protect human life. Additionally, the agency approvals on these products do not include any approvals required by AHJs or Kidde Fire Systems for use in life safety protection.

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