# BLUE SIREN®
**Monitor with Vision®**

# FLOWSiren® PRO
## WATER QUALITY FLOW KIT
## WIRELESS FLOWMETER

Select Three Water Quality Sensor Options, and Combine with Flow or Level Sensor.

Optional Sampler Cable Allows for Flow and Alam Based Water Sampler

Connect Multiple Sensors, up to 20 Channels

Waterproof, Impact Resistant HDPE,UR Enclosure

Modular Wireless Design allows 4G or WiFi Connectivity

### FLOWSiren® - Get PRO

The FLOWSiren® is a multi-sensor autonomous wireless monitoring platform designed to work in the harshest conditions, delivering data to your desk every time. The built-in multi-media platform allows direct connection of our vision camera taking simultaneous pictures that correlate directly with sensor readings. Receive alarm emails with images showing the event details and severity.

Automatically upload data for analysis to BlueLive® Cloud, DropBox®, GoogleDrive® or FTP location of your choice. Future proof worldwide LTE wireless module supports multiple countries and cellular frequencies, WiFi option also supported.
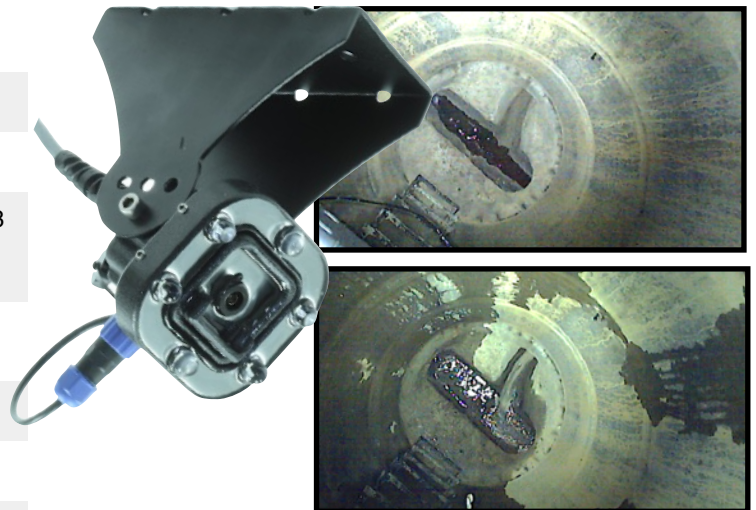
| | |
|---|---|
| Dimensions: | 7 X 7 X 9 in.<br>Base unit without Auxiliary Sensor Module or Battery |
| Weight: | 10 lbs. |
| Enclosure: | HDPE, UR, EP materials |
| Rating: | Fully encapsulated enclosure can be submerged for up to 2 hours under 1m of water |
| Power: | Logger Input: 3.3V DC<br>Sensor Input: 5, 10 and 12V DC Battery Packs |
| Battery: | Alkaline or Rechargeable Battery Packs Available |
| Input: | Up to 20 Sensor Channels |
| Data Storage: | Internal Flash Memory, 88000 Sensor Readings and 8 MG of OB flash images, Optional USB allows for Gigabytes of storage of images and data. |
| Sampling Rate: | User Defined: 1 Minute Minimum (Standard)<br>1 Second Minimum (Optional) |
| Alarming: | User Defined Data Point Threshold |
| Wireless: | 4G LTE Worldwide Cellular Modem or WiFi |
| Software Interface: | FieldSIREN™ Proprietary Field Software (Included free with every purchase.) |
| Data Interface: | BlueLive® Cloud Based Big Data Hosting, FTP, Drop Box®, Google Drive® |
| Output Options: | RS485, LCD, Flow and Alarm Pulse |

### Monitor with Vision®

Each FLOWSiren® monitor has a standardized camera port allowing you to monitor with vision® at any time. Great for overflow verification, industrial trade waste color, and Infiltration detection. Camera resolution can range from 5MP all the way down to 0.1MP, complete with user programmable compression.

CAM

# Electrical Conductivity EC Sensor

Fully Submersible

Max Pressure Of 200 PSI

Temperature Range Of 0-110°C

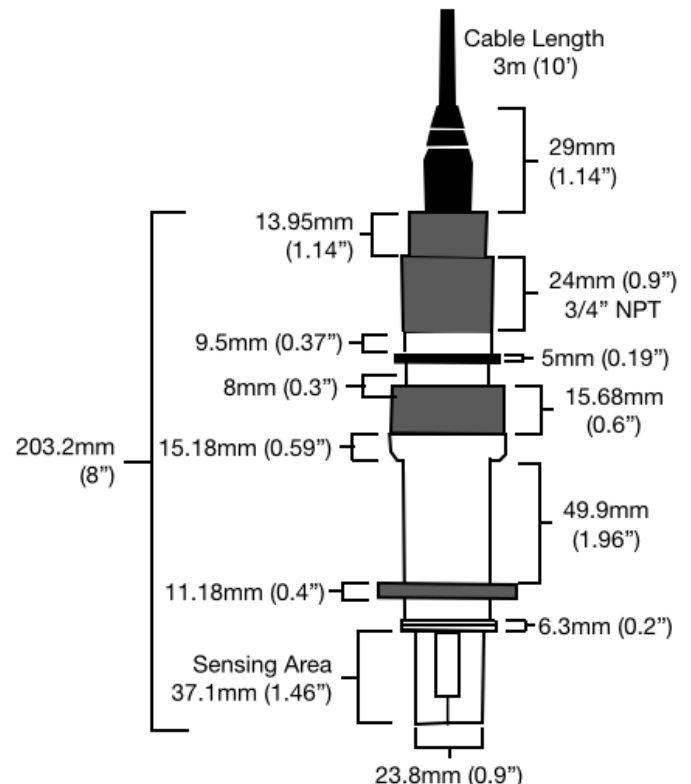Embedded Conductivity Circuit

Continuous 1 Reading Per Second

## Electrical Conductivity

Easily measure and monitor EC levels for industrial, water and wastewater applications.

Two electrodes are stored opposite of each other in the EC probe. When power is applied cations move to the negative electrode while anions move to the positive electrode. The higher the number of free electrolytes in the fluid the higher the EC reading.

This high-temperature resistant sensor is great for industrial application for any fluids up to 60m in depth.

## Technical Specifications:

| | |
|---|---|
| Body Material: | CPVC, Graphite, Viton |
| Temp. Probe Type | Class A Platinum, RTD |
| Reads: | Conductivity = $\mu$S/cm<br>Total Dissolved Solids = ppm<br>Salinity = PSU (ppt) 0.00 - 42.00 |
| Response Time: | 1 Reading Per Second |
| Max Depth: | 60m (197ft) |
| Max Pressure: | 200 PSI |
| Range: | 5 - 200,000 $\mu$S/cm |
| Accuracy: | +/- (0.15 + (0.002*t)) |
| Operating Voltage: | 3.3V - 5V DC |
| Temperature Range °C: | 0°C to 110°C |
| Temp. Compensation | Yes |
| Cable: | 3 Meters (10 Feet) |
| Data Protocol: | UART and I$^2$C |
| Data Format: | ASCII |



Cable Length 3m (10')

29mm (1.14")

13.95mm (1.14")

24mm (0.9") 3/4" NPT

9.5mm (0.37")

5mm (0.19")

8mm (0.3")

15.68mm (0.6")

203.2mm (8")

15.18mm (0.59")

49.9mm (1.96")

11.18mm (0.4")

6.3mm (0.2")

Sensing Area 37.1mm (1.46")

23.8mm (0.9")

# pH Sensor

Fully Submersible

Max Pressure Of 100 PSI

Temperature Range Of 1-99ºC
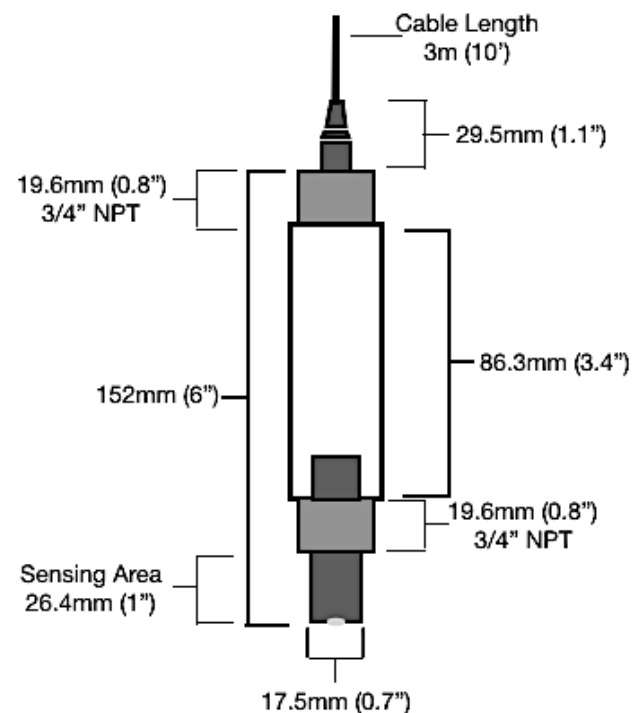
Double Junction Silver/ Silver Chloride

Measure from 0 to 14 pH

## Monitor 0-14 pH

Easily measure and autonomously monitor pH levels in water and wastewater applications.

Fully submerge the pH probe into any fresh, salt, or industrial water up to 60m. The probe's glass membrane allows hydrogen particles to diffuse through its outer layer which react with hydrogen particles left in the fluid.

This high-temperature resistant sensor is great for industrial and sewage applications and can monitor pH levels up to 100 PSI with an accuracy of +/-0.002.

## Technical Specifications:

| | |
|---|---|
| Weight: | 250 Grams |
| Body Material: | Ryton Thermoplastic |
| Max Depth: | 60m (197ft) |
| Max Pressure: | 100 PSI |
| Accuracy: | +/- 0.002 |
| Operating Voltage: | 3.3V - 5V |
| Temp. Compensation | Yes |
| Resolution: | 0.001 |
| Range: | 0.001 - 14.000 |
| Temp. Probe Type | Class A Platinum, RTD |
| Cable: | 3 Meters (10 Feet) |
| Data Protocol: | UART and I$^2$C |
| Response Time: | 1 Reading Per Second |
| Data Format: | ASCII |
| Temperature Range ºC: | 1°C to 99°C |
| Life Expectancy: | ~4 Years + |



Cable Length 3m (10')

29.5mm (1.1")

19.6mm (0.8") 3/4" NPT

86.3mm (3.4")

152mm (6")

19.6mm (0.8") 3/4" NPT

Sensing Area 26.4mm (1")

17.5mm (0.7")

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION, DESIGN OR OTHERWISE. ... It shall be the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application.

# Temperature Sensor
# Product Specification Sheet



Fully Submersible

High Range Reads Temperatures as Low as -200ºC and as High as 850ºC.

Cable can be extended up to 300 meters.

Platinum Resistance Thermometer

High Accuracy +/- (0.15 + (0.002*t))

## TEMP

High range sensor measures from -200ºC to 850ºC. Measure the toughest of environmental conditions.

High resolution of 0.001ºC make this sensor versatile in the lab, field, soil, industrial and wastewater applications. The cable can be extended up to 300 meters and reads temperatures as low as -200ºC and as high as 850ºC.

Digital processing sends stable readings to the wireless RTU allowing for accurate data with every sample collected.

## Technical Specifications:

| | |
|---|---|
| Dimensions: | 6mm x 81cm (0.2" x 32") |
| Probe Type: | Class A Platinum, RTD |
| Sensing Material: | 304 SS |
| Connector: | Male BNC |
| Range: | -200ºC - 850ºC |
| Accuracy: | +/- (0.15ºC + 0.002 x ºC) |
| Resolution: | 0.001 |
| Response Time: | 1 Second Reading |
| Temperature Output: | ºC, ºK, ºF |
| Cable Length: | 81cm |
| Min/Max Cable Temp: | -55ºC/125ºC |
| Operating Voltage: | 3.3V - 5V |
| Data Format: | ASCII |
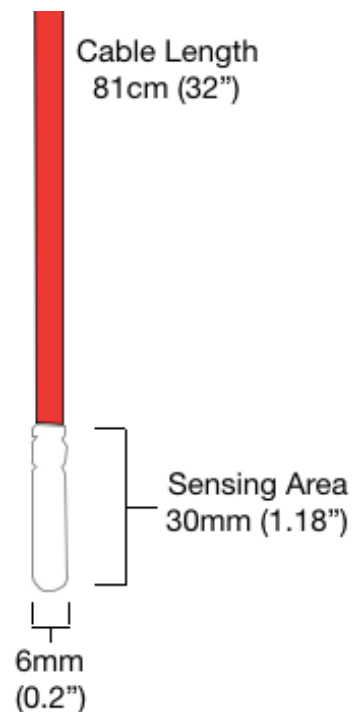


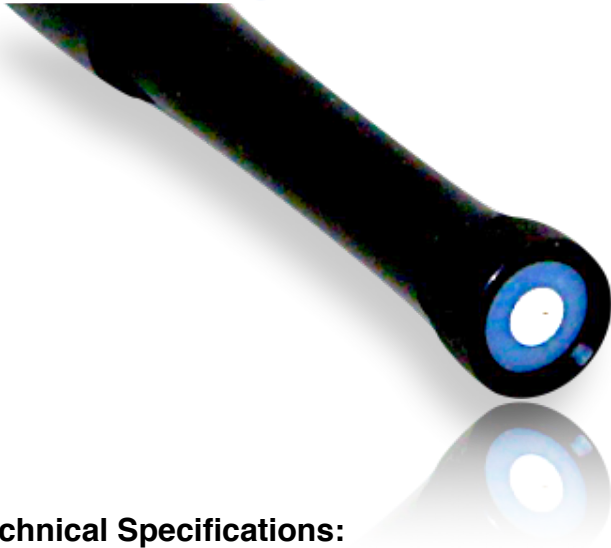Cable Length
81cm (32")

Sensing Area
30mm (1.18")

6mm
(0.2")

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# Dissolved Oxygen DO Sensor
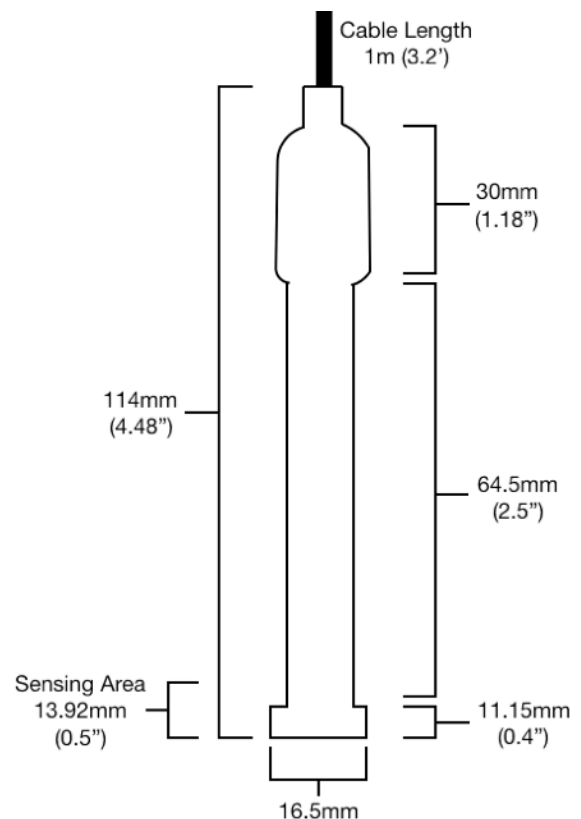
Fully Submersible

Max Pressure Of 500 PSI

Temperature Range Of 1-50ºC

Measure Concentrations of 0.01 -100+ mg/L

Monitor dissolved oxygen levels in water and wastewater using this sensor. Easily connect to the SOLOSiren® allowing you to collect and send wireless DO readings to the cloud for further analysis.

When the probe is submerged, oxygen molecules start to diffuse through the probe's polyethylene membrane at a constant rate. The molecules get reduced at the pure silver cathode and produce a small voltage which is then converted to a DO reading.

Readings can be gathered up to 343 meters with an accuracy of ±0.05 mg/L.

## Technical Specifications:

| | |
|---|---|
| Max Depth: | 343 meters (1,125 ft) |
| Max Pressure: | 3,447 kPA (500 PSI) |
| Accuracy: | +/- 0.05 mg/L |
| Operating Voltage: | 3.3V - 5V |
| Temp. Compensation | Yes |
| Range: | 0.01 -100+ mg/L 0.1 - 400+ %saturation |
| Cable: | 1 Meter |
| Data Protocol: | UART and I$^2$C |
| Response Time: | 1 Reading Per Second |
| Data Format: | ASCII |
| Temperature Range ºC: | 1°C to 50°C |
| Internal Temp. Sensor: | No |
| Maintenance: | ~18 Months |
| Life Expectancy: | 5 Years + |



Cable Length 1m (3.2')

30mm (1.18")

114mm (4.48")

64.5mm (2.5")

Sensing Area 13.92mm (0.5")

11.15mm (0.4")

16.5mm

# Industrial Long Range Ultrasonic Level Sensor Product Specification Sheet

Measure Overflow Depths Manholes and CSO Chambers

Pre-Calibrated for Water Level Detection

Long Range Measurement from 8 inches to 20 ft

Submersible Design

Smart Signal vs Level Detection and Correction when used with Blue Siren Loggers.

Accurately measure from 8 inches (200mm) up to 20ft (6m). Great for ponds, lakes, and manhole monitoring.

Digital output with signal strength information allows the monitor to determine if a reading is good or not. Smart digital processing allows for the elimination of unwanted data commonly associated with non-contact sensors.

All sensors provide precision measurement for wastewater and water flow with non-uniform surfaces by incorporating state-of-the-art transducer technology and processing algorithms.

## Technical Specifications:

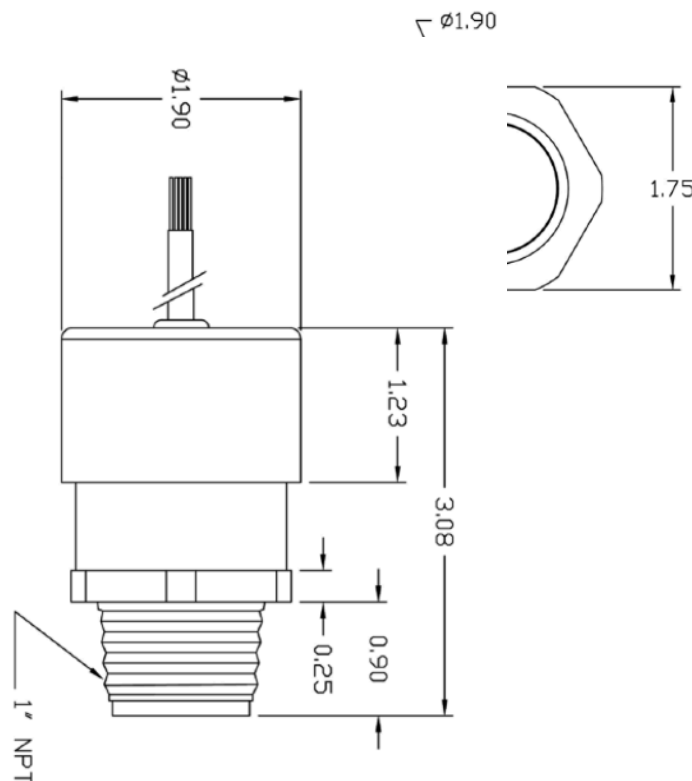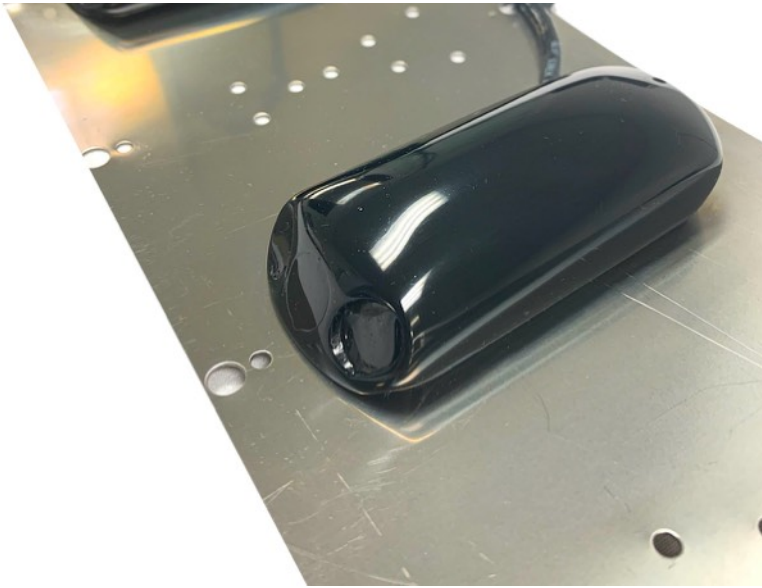| | |
|---|---|
| Body Material: | Rugged PVC |
| Accuracy: | +/- 0.1% Measurement Accuracy |
| Beam Angle: | 8º Conical |
| Operating Voltage: | 12V DC |
| Temp. Compensation | Yes |
| Resolution: | 11 Bit |
| Range: | Dead-Band: 8in (200mm) Maximum Range: 20ft (6m) |
| Response Time: | 60 mS |
| Sampling Rate: | 10 Samples Per Second |
| Temperature Range: | -40ºC to 70ºC |
| Relative Humidity: | 0 to 95%, non-condensing |
| Enclosure Rating: | IP68 |
| Range Accuracy: | 0.01in (0.25 mm) Measuring Resolution |

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# BLUE SIREN®

**Monitor with Vision®**

# AV Flow Sensor
## DUAL-WAVE
## Ultrasonic Doppler Velocity

Fully Submersible

Dual-Wave Doppler Technology

Averaging Algorithms Applied

Doppler frequency is proportional to the speed of water in m/s
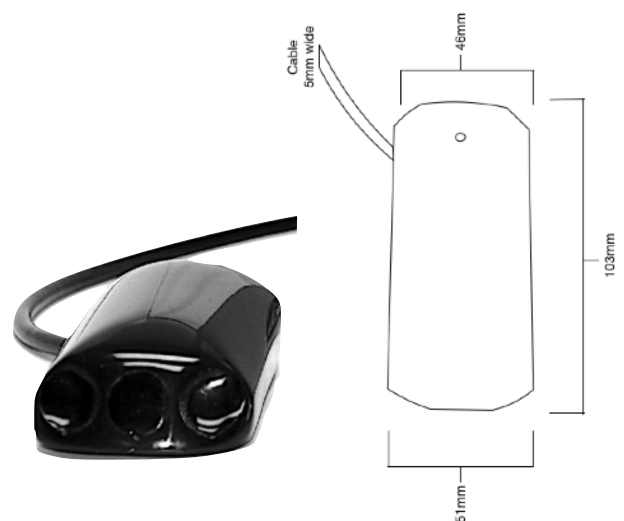
## Dual-Wave Velocity

The Blue Siren Dual-Wave Velocity (AV) Sensor uses the Doppler effect to measure velocity using acoustic technology.

This AV sensor contains both pressure-depth and velocity sensors that are highly sensitive and accurate and provide you with data you can count on.

All electronics are encapsulated within the sensor housing.

Velocity is output via serial digital data stream and depth is output via an analog 0-5V signal.

Dual Wave Technology utilizes dual transmitters, filling the flow stream with more sounds waves, reaching a greater acoustic profile.

| | |
|---|---|
| Pressure: | 30ft (10m) 15 PSI or 10ft (3m) 5 PSI |
| Accuracy: | +/- 2% Laminar Flow |
| Input Voltage: | 6-16V DC |
| Warmup Time: | 2 seconds minimum |
| Resolution: | 1 mm/s or 1 Hz/sec |
| Range: | 0 to +10m/s (-6m/s optional) |
| Cable: | 7.62m (25ft) Standard |
| Response Time: | 4 digital samples/second |
| Serial Output: | UART - TTL, RS485, Hz |
| Baud Rate: | 4800 |
| Depth Output: | 0 - 5V |
| Depth Accuracy: | 5PSI (+-) 1mm or 15PSI (+-) 2mm |
| Burst Height: | > 100ft (15PSI) |
| Redundancy: | Multiple Sensors can be used simultaneously using Dual Wave technology |
| Linearity: | +/- 0.15% |

# INDUSTRIAL 5MP VISION SENSOR

5MP Camera Sensor with High Output LED Ring

Multiple Resolution and Compression Settings

Maximum 5MP resolution

Bult-in Compression

Encapsulated Electronics

## Monitor With Vision®

The Blue Siren® 5MP high output LED Camera Sensor is great for thousands of applications: sewer pipes, grease clogging, inflow and infiltration problems, monitor storm grates and implement camera based infrastructure security.

Automatically store images and send them to any server or website. Subscribe to the BlueLive® Database and see your images as they upload. Sensor readings automatically correlate with image time stamps, allowing more in-depth analysis of system conditions.

The Camera Sensor is constructed using impact resistant urethane and encapsulated using optically clear epoxy. Air is fully vacuumed out of each sensor leaving no room for condensation or moisture.
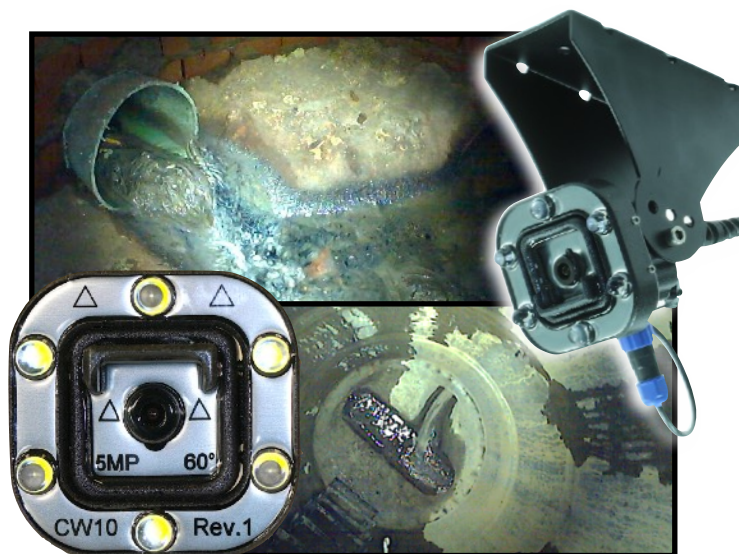


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## Technical Specifications:

| | |
|---|---|
| Pixel Resolution : | 2592×1944 (Default), 2048×1536, 1920×1080, 1600×1200, 1280×960, 1024×768, 800×600, VGA, QVGA, 160×120 |
| Sensor: | 1/4" CMOS |
| Baud Rate: | 115200bps (default), 19200bps, 38400bps, 57600bps, optional |
| Angle of View (FOV): | 60 degree (default), 120/90/45/30/15/8 degree Optional |
| Focal Length: | 3.6mm (default), 2.8mm/6mm/8mm/ 12mm/ 16mm/25mm Optional |
| White Balance: | Automatic |
| Operating Temperature: | -4°F-140°F |
| Sample Rate: | Minimum 1 minute |
| Auto Gain Control: | Automatic |
| Exposure: | Automatic |

# DATA MANAGEMENT
## Wireless Cloud Delivery and Data Analysis

### *View and Analyze Real Time Data*

### *Automatic Delivery to Hosting Provider of your choice, DropBox®, Google Drive®, FTP, email, BlueLive®*

### *Batch View Line and Scatter Plots*

### *Manage Large Networks*

### *Multiple End Users, No Additional Fees*

## FLEXIBLE DATA PLAN AND DELIVERY OPTIONS:

Automatically upload monitor data to BlueLive®, DropBox®, GoogleDrive®, email, or a FTP location of your choice. The internal worldwide 4G LTE wireless module supports multiple countries and cellular frequencies. In addition, WiFi connectivity options also available for infrastructure implementation. Provide your own SIM card and cellular network or have Blue Siren provide one for you. Blue Siren has low cost options on major networks such as AT&T® and Verizon Wireless®.



*Multi-Layered Line Graphs*

*Batch Report and ScatterPlots*

*GIS, Google Maps, and Spatial Analysis Tools*

*Image vs Data Correlation and TimeLapse*