

BrightTEK™ ST9x Wireless Tank Monitoring System

DESCRIPTION

BrightTEK™ by AMETEK® provides remote wireless connectivity of Magnetrol®, Orion Instruments®, Drexelbrook® and SWI® level measurement sensors to the AMETEK cloud-enabled, BrightTEK web server allowing remote data monitoring and inventory management.

ST95 – Cellular Uplink Host

The ST95 is a battery-powered cellular uplink used to connect the level measurement devices. The uplink can be used to provide power and monitoring to sensors in remote locations and tank farms without the need to install wired data and power connections, reducing installation cost. They can also be added to existing (already wired) sensors without interfering with existing PLC and DCS systems to provide remote access to sensor data.

The ST95 can power and communicate with up to two 4-20mA sensors. It is compatible with either AT&T® or Verizon® cellular services. The ST95 is certified intrinsically safe for Class 1 Division 1 Group D locations. It can be installed with a standalone sensor or in a tank farm environment supporting up to 12 ST95 clients with one cellular connection.



Integrated GPS functionality
Enables accurate asset tracking



Affordable Pricing
Offers a cost-effective solution with low monthly fee for each site



Battery life
Efficient battery usage reduces the need for frequent replacements



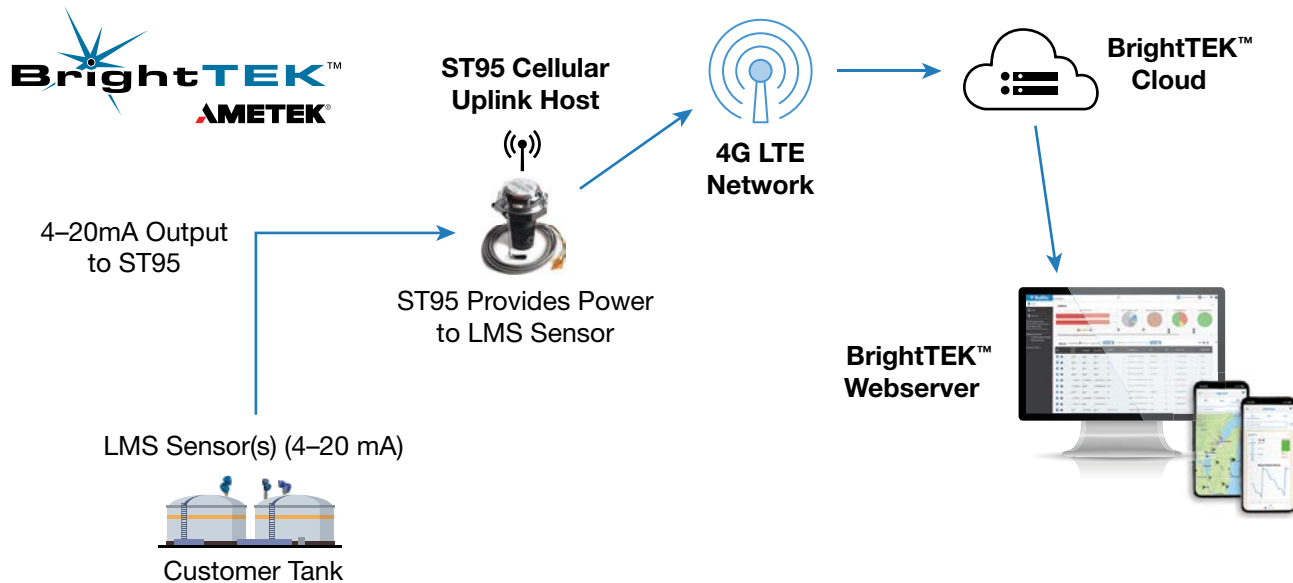
Easy installation
Ensures a hassle-free setup process for quick deployment

INSTALL ILLUSTRATIONS

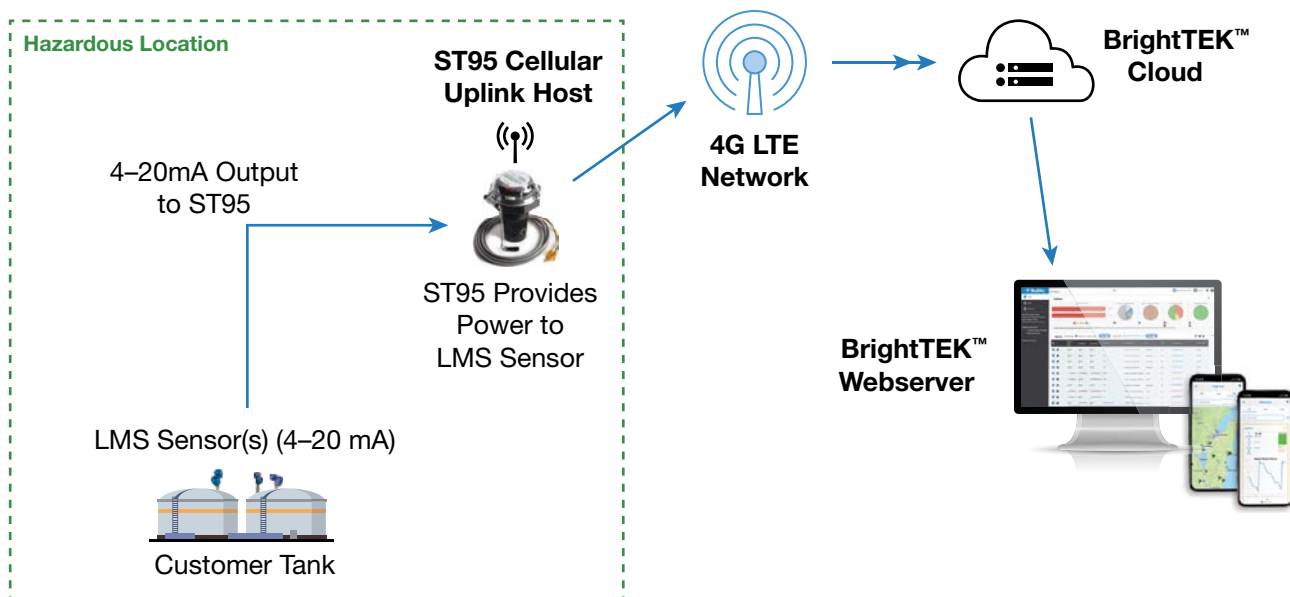
The ST95 uplink client provides a means to connect multiple ST95 devices together via radio communications and transmit data to one host device. This allows for multi-tank monitoring in remote locations with a single source for remote monitoring.



ST95 Cellular Uplink Host – Non-hazardous



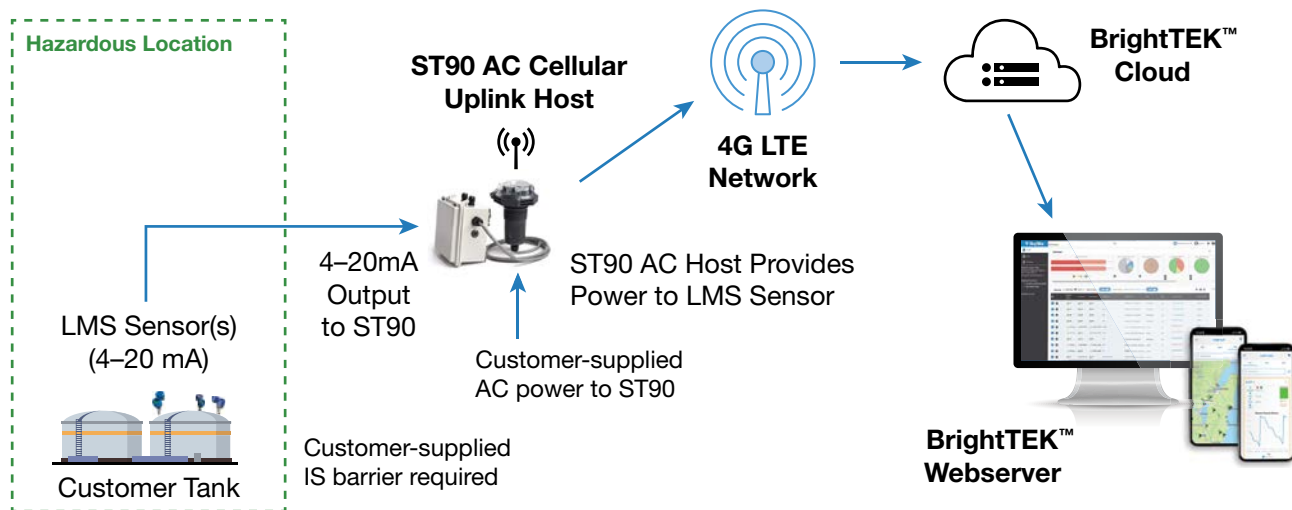
ST95 Cellular Uplink Host – Hazardous



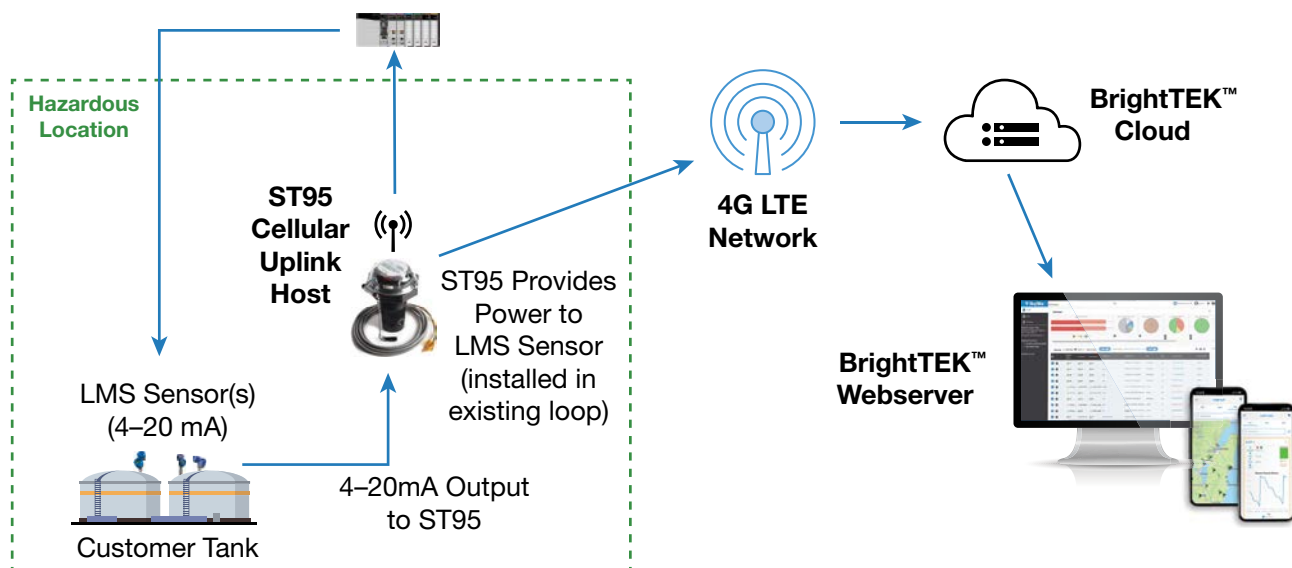
The ST90 Cellular Uplink Can be used to power and communicate with up to 32 4-20mA sensors. The ST90 Cellular Uplink is compatible with either ATT or Verizon cellular services. The ST90 Cellular Uplink is not compatible with installation in hazardous locations.



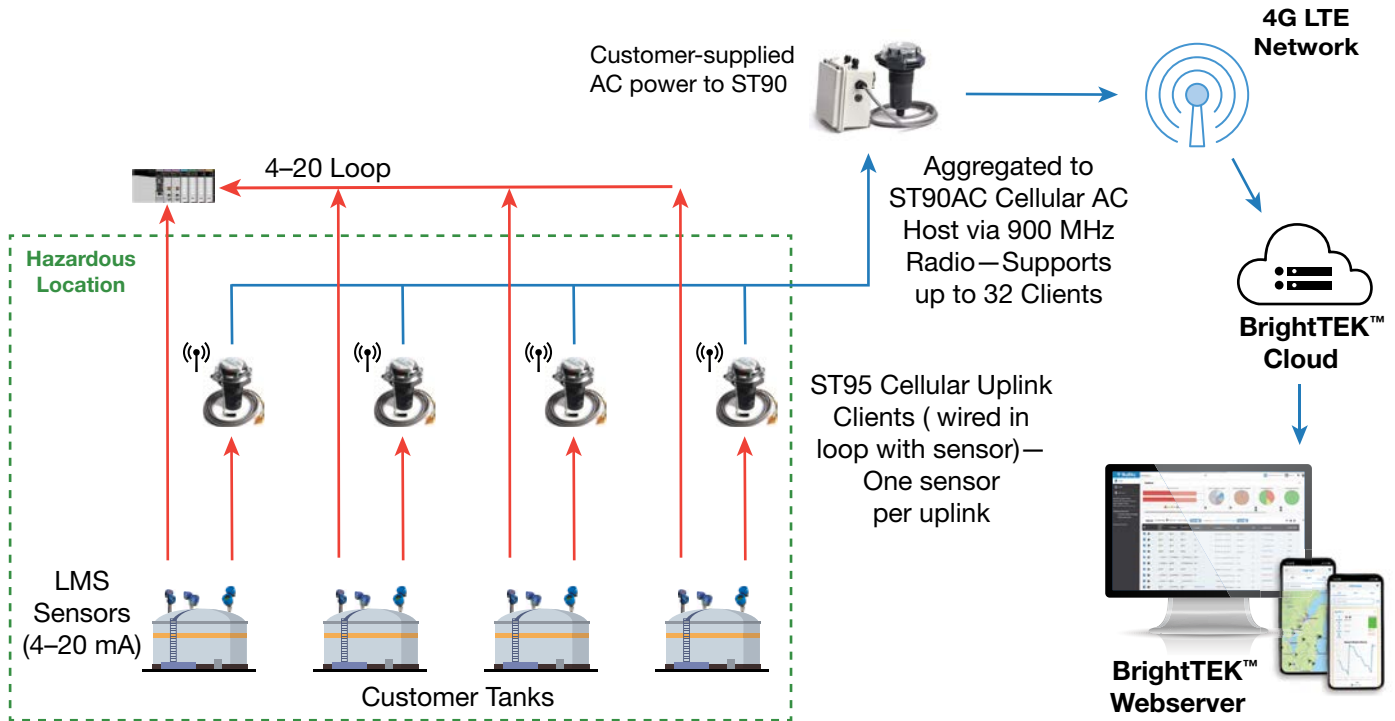
ST90 AC Cellular Uplink Host



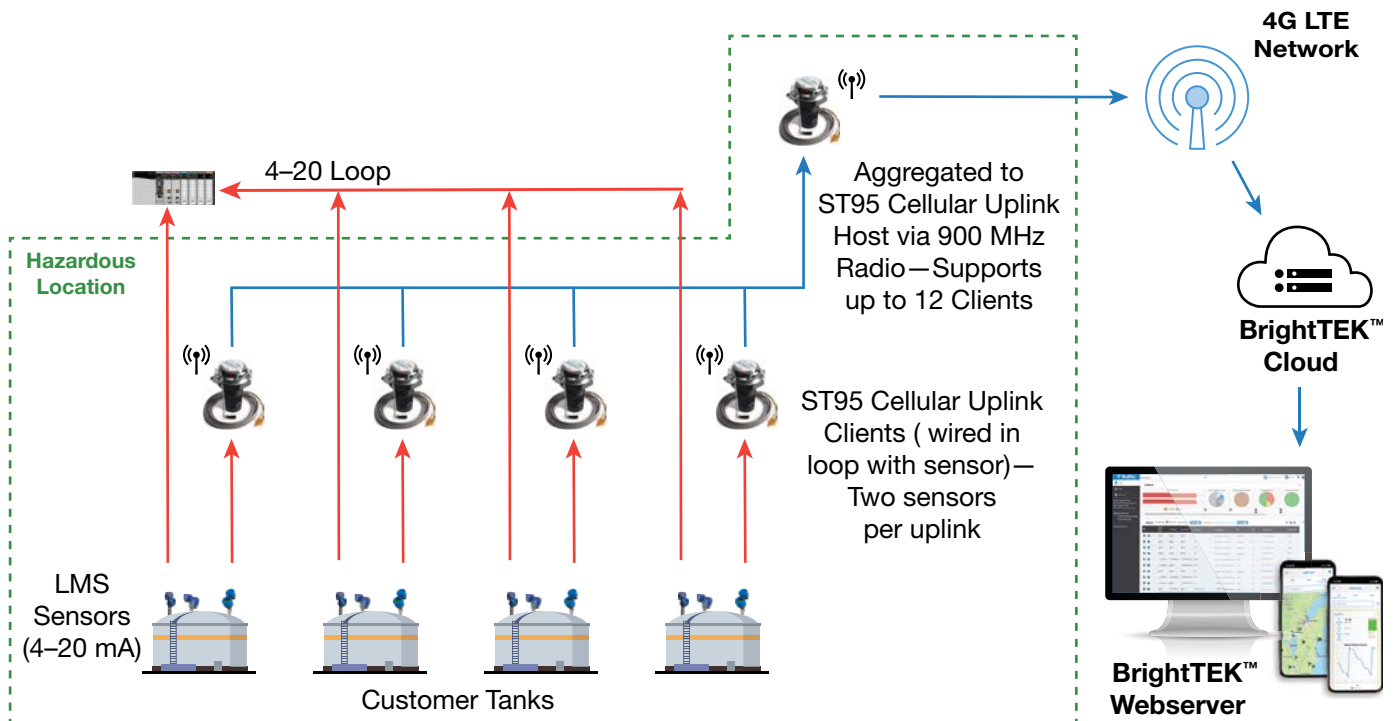
ST95 Cellular Uplink Host – Hazardous with PLC/DCS



ST95 Client / ST90 AC Host – Hazardous with PLC/DCS



ST95 Client / ST95 Host – Hazardous with PLC/DCS



FEATURES & BENEFITS

The ST95 consists of two 4-20mA inputs available at the bottom of the unit. The unit can connect via a prewired 50-foot cable which allows the unit to be placed in non-hazardous locations while the wiring can connect to a sensor located in a hazardous location. This also can enable connecting the telemetry unit to the pre-existing wiring or junction box so that the head unit can be placed high for optimal line-of-sight communication path with area cell towers and the connecting client devices.

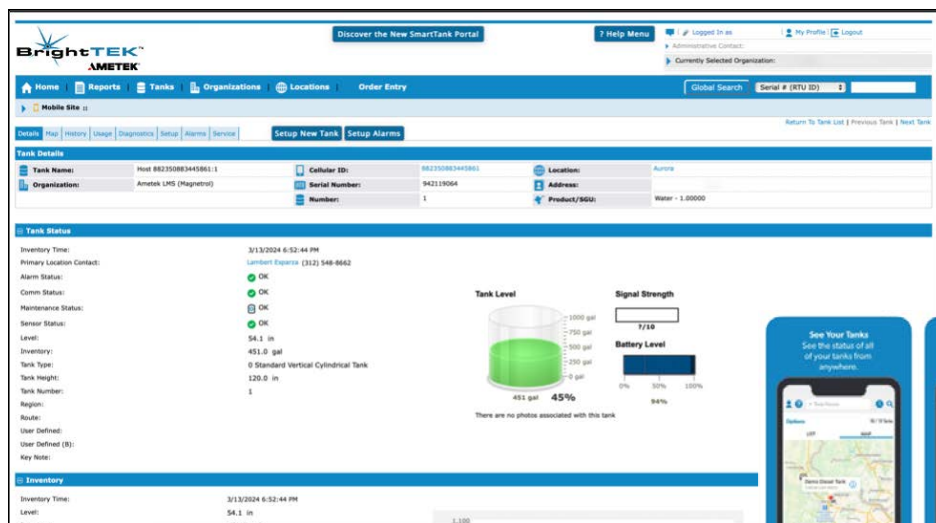
Once installed and configured, site managers and drivers can easily request a date from the ST95 at preconfigured time intervals or manually request information via a magnetic switch from the device itself.

The ST90 AC Powered Cellular Uplink Host has all the same features as the battery-powered ST95 Cellular Uplink Host including a compact rugged design, durable rating, reliable radio communication on either AT&T or Verizon networks, GPS Capability and accessory options for an easy to install solution.

BrightTEK WEBSERVER

BrightTEK by AMETEK is a web-based platform that gives system users total visibility to process variables such as: tank level, temperature, location and more that can be monitored 24/7. Receive notifications, alerts and alarms at set intervals based on your process

needs. Chemical suppliers, distributors, operations, and production managers optimize their operating efficiency through wireless tank monitoring and receive a rapid ROI based upon reduced tank servicing costs and improved inventory management.



With the user-friendly, easy to navigate BrightTEK, you can:

- Reduce manpower to remote sites
- Reduce installation costs by cutting down on wiring and conduit
- Eliminate product runouts
- Reduce costly emergency deliveries

- Use the Historical Usage Trends feature to deliver more product less often

Level, trends, location, logging, reports, and more – it's all at your fingertips. Download the app today and start reaping the benefits of remote tank monitoring.

ENSURING CYBERSECURITY EXCELLENCE

BrightTEK implements a proactive cybersecurity strategy, integrating rigorous training, Shift-Left Security Principles and DevSecOps methodologies throughout the software development lifecycle.

By prioritizing early detection and mitigation of vulnerabilities, utilizing advanced security tools, and conducting continuous monitoring and security testing, SmartTank ensures a strong defense against evolving cyber threats.

Our DevSecOps practices integrate security measures early in the development process, including Static Application Security Testing (SAST) to scan for OWASP Top 10, SANS Top 25, and Common Weakness Enumerations (CWEs).

Our datacenters are certified SOC 2 Type 2 and SOC 3 (Tank Monitoring) demonstrating our commitment to maintaining high standards of security and compliance.



Protecting Your Data

Encrypted in Transit and Rest with TLS 1.2+ and 256-bit AES.



Stay Ahead, Stay Secure

Protecting Your Infrastructure with continuous monitoring.



Safeguarding Your Secrets

Centralized Management for Enhanced Security



Fortifying Your Firmware

Resilience Through Secure Deployment

Safeguarding Your Digital Assets

Principle of Least Privilege Access (PoLP)

BrightTEK ensures that users and systems are granted only the minimum access levels necessary to perform their tasks. This approach reduces the potential impact of security incidents and minimizes the misuse of compromised credentials.

Secrets Management

Access credentials and keys are not stored in source code. Instead, they are securely managed in a dedicated Secrets Management tool with environment-based isolation.

Web Application Firewall (WAF)

Public-facing web applications are protected by a WAF with rules configured to safeguard against OWASP Top 10 vulnerabilities, including SQL Injection, XSS, and CSRF.

Data Encryption

Data in transit and at rest is encrypted using TLS 1.2+ and 256-bit AES, respectively. Trusted third-party Certificate Authorities (CAs) issue digital certificates. Mutual TLS is implemented between IoT devices and back-end servers where possible.

Vulnerability Scanning

Internal infrastructure and network components are continuously scanned for vulnerabilities using industry leading solutions.

External Scanning

BrightTEK continuously scans its public attack surface for vulnerabilities. Domains and IPs used in public-facing products are registered with a Corporate External Scanning solution, with vulnerabilities addressed based on severity levels.

Endpoint Protection

Computer instances are protected using Endpoint Protection solutions, including malware protection, host firewalls, and intrusion detection & prevention.

Penetration Testing & Threat Modeling

AMETEK conducts periodic PenTesting and Threat Modeling exercises as needed to address security gaps.

Cloud Threat Detection

Cloud environments utilize native Managed Threat Detection services such as AWS Guard Duty and Azure Defender for continuous threat detection.

Firmware Security

Secure boot mechanisms and firmware integrity checks prevent unauthorized software execution. Firmware Over the Air (FOTA) updates adhere to IETF SUIT standards for secure deployment.

TECHNICAL SPECIFICATIONS

ST95 CELLULAR UPLINK HOST / UPLINK CLIENT

Hardware

Hazardous Classification	Class 1 Div. 1 Group D, Temperature Code T3C
Weight	Without Sensor Assembly: 2.0 lbs. (0.91 kg)
Construction	ROHS Compliant
Enclosure	CPVC w/Lexan Cover, Weatherproof, NEMA 4X/IP56, UL94V-0

Performance

Output Voltage	Nominally 21V $\pm$ 5%
Output Current	Rated from 0-50mA
Sensor	Intrinsically Safe 4-20 mA
Battery	6V - SmartTank Battery Pack, P/N 394-00023
Expected Battery Life	Up to three years depending on website settings

Wireless Communications

Mode	LTE Digital Wireless Radio / Satellite RF Approval: FCC Part 15 Approved GPS Receiver: Internal Antenna, Optional External GSM Antenna
Cellular Specifications	LTE Cat-1 with 3G fall back (Verizon is LTE only)

Environmental

Operating Temperature	-4 to +104 °F (-20 to +40 °C)
Storage Temperature	-40 to +185 °F (-40 to +85 °C)

Installation Requirements

Secure Mounting	Mount the ST95 Uplink in a location shielded from potential external damage. Use the designated mounting kit for stability and protection.
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ST90 AC POWERED CELLULAR UPLINK HOST

Physical

Construction	ROHS Compliant
Enclosure	Polypropylene w/ Lexan Cover, Weatherproof, NEMA 4X, UL94V-0

Wireless Communications

Mode	GSM Digital Wireless Radio / 900MHz Wideband WLAN
RF Approval	FCC Part 15 B approved
Frequency bands	GSM Digital Wireless Radio / 900MHz
GPS Receiver	Internal Antenna, Optional External GSM Antenna

Performance

Output Voltage: Nominally 14V/24V	GSM Digital Wireless Radio / 900MHz Wideband WLAN
Output Current	Rated from 0-50mA
Load Regulation	0.5% from 30mA load
Ripple	50mV Peak-to-Peak

Environmental

Operating Temperature	-13 to +158 °F (-25 to +70 °C)
Storage Temperature	-40 to +185 °F (-40 to +85 °C)

FREQUENTLY ASKED QUESTIONS

What is the difference between the ST95 and ST90?

The ST95 is a wireless monitoring device that is suitable for hazardous area installations while the ST90 is not. The ST95 is a battery powered unit that can accept a 4-20mA signal from an LMS level sensor while also providing intermittent power to the sensor. The ST90 is available as an AC Host that is not battery powered, but acts as an aggregator for multiple ST95 client devices.

What is the difference between an uplink, client & host?

An uplink provides a communications path from up to two sensors to a single ST95 (Uplink) which then transmits data to the BrightTEK Cloud Server via cellular communications. A client can be one of multiple ST95s (client) that communicate along with other ST95s via 900MHz radio to an ST90 AC Powered Host. The Host is an aggregator that will take in data from multiple clients and send that data to the cloud via cellular communications.

How do I know if I need an AC Powered Host?

The AC powered host offers the ability to call or ping ST95 clients at any time versus waiting a set interval of time to obtain level data. If you require the ability to call for data at any time, the AC powered host is ideal. It can also connect to up to 32 ST95 clients (Tanks) for communications.

How do I know my data will be secure from hackers or unauthorized use?

SmartTank ensures that users and systems are granted only the minimum access levels necessary to perform their tasks. This approach reduces the potential impact of security incidents and minimizes the misuse of compromised credentials. Access credentials and keys are not stored in source code. Instead, they are securely managed in a dedicated Secrets Management tool with environment-based isolation.

Can I still use my PLC and/or DCS?

Absolutely! The ST9x and BrightTEK provide an additional resource for data availability. The uplink is wired into the 4-20 loop circuit and does not interfere with communications to an already existing PLC or DCS system.

How long does the battery in the ST95 last?

Battery life will vary based on several parameters such as call intervals, power consumption of the sensor amongst others. On average users can expect anywhere from 3 to 5 years of battery life before replacement is needed.

SPARE PARTS / ACCESSORIES



ST95 Battery
P/N 089-WRL9-001



Universal Mounting Kit
P/N 089-WRL9-002

MOUNTING BRACKET SELECTION



AMETEK LMS Transmitter Mount



Pipe Mount



Magnetic Mount



Clamp Mount

MODEL NUMBER GUIDE

1 2 3 4 5 6 | BASE CODE

W R L S T 9	Model Series ST9X - Cellular Uplink / 900 MHz Uplink Client / Cellular AC Host
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7 | MODEL TYPE

0	ST90 - AC Powered Uplink Host
5	ST95 Cellular Uplink or Uplink Client

8 | COMMUNICATIONS TYPE / SIM

H	GSM – AT&T (Host)
W	CDMA – Verizon (Host)
L	900 MHz – Radio (Client)

9 | Sensor Input / Type / Housing

1	Single 4-20mA Input / ST95 Uplink and/or Uplink Client / CPVC
2	Dual 4-20mA Input / ST95 Uplink and/or Uplink Client / CPVC
B	Dual 4-20mA Input - AC Powered Host / ST90 AC Powers Host / CPVC with External Antenna

10 | OPEN FOR FUTURE USE

0	Standard
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W R L - S T 9 - - 0

The ST9X series devices represent a significant advancement in IIOT process instrumentation, empowering industrial users with unparalleled connectivity and data accessibility. With its universal compatibility, robust design, and advanced features, this device is poised to revolutionize how level data is collected, monitored, and managed in industrial settings.

For more information about the AMETEK ST9X Series Uplink devices and its compatibility with LMS sensors, please contact our sales team.

