

# rstar AFFINITY

## RSTAR AFFINITY

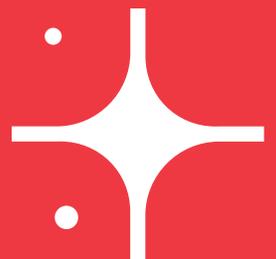
**The RSTAR Affinity Digital Suite is the turnkey data solution for your Industrial Internet of Things (IIoT) projects. Setup is simple and it is easy to use in your established geotechnical workflow.**



RSTAR Affinity integrates sensor data logging, capture, communication, and near real-time analysis into an end-to-end solution for the geotechnical industry.

Built by our team of seasoned instrumentation experts specifically for geotechnical monitoring projects, the RSTAR Affinity system comprises loggers, gateways, secure communications for data telemetry, and mobile and desktop applications. Forget the headaches of improvised monitoring solutions cobbled together from different third-party vendors.

RSTAR Affinity represents your complete IIoT solution for reliable, real-time data flow from your work site to your desktop—all from a single source.



## RSTAR AFFINITY

Data retrieval can be configured, and analysis can be performed from the comforts of an office chair or out in the field. Used together, the browser-based dashboard and mobile application communicate with RSTAR Affinity gateways and data loggers to create an ecosystem of best-in-class geotechnical, environmental, and structural monitoring.

FUNCTIONAL OVERVIEW	
Flexible cloud-based or on-premises platform	<p>RSTAR Affinity on the cloud platform provides a secure API platform for the configuration, communication, management, and storage of sites, devices, and data via the web-based dashboard and mobile application. It can be accessed from anywhere an internet connection exists.</p> <p>The RSTAR Affinity on-premises platform allows you to have the server installed on a computer within the closed network environment of your organization. It provides a secure platform for the configuration, communication, management, and storage of sites, devices, and data via the RSTAR Affinity dashboard and mobile application software where internet connectivity may not be available. It can be accessed from anywhere within your organization's network.</p>
User Management	Create and configure the access level and role of users within the system.
Device Management	Add and remove devices on your established sites, as well as configure their data telemetry, alerts, alarms, and notification structure.
Cloud Storage	In addition to local onboard device storage, all data and site/device configurations received by the RSTAR Affinity server is stored within its cloud-based service.
Experienced Service Delivery	RSTAR Affinity allows our experienced RST support team to remotely assist you if issues arise.



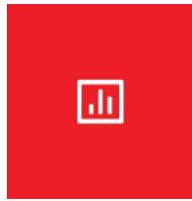
## RSTAR AFFINITY WEB-BASED DASHBOARD

Hosted in the cloud (or a closed on-premises environment) behind user credentials, this application provides all the tools required to configure data telemetry from the field to be accurately analyzed.



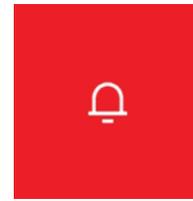
### MAPS

Scan bird's eye view maps focused using latitude and longitude to visualize and set up your site locations



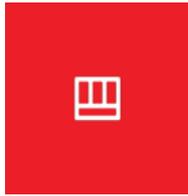
### GRAPHS

Create multiple graph types from sensor data including time series and XY, and scatter for data visualization and analysis



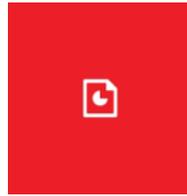
### ALERTS

Receive near real-time email notifications containing calculation metrics and sensor status when user-defined sensor data reach thresholds



### DATA TABLES

View multiple sensor-type data in standardized data tables for clear review, comparison, or export



### REPORTS

Take advantage of powerful automated report creation, distribution, and linking of reports to real-time charts, graphs, maps, and dashboards

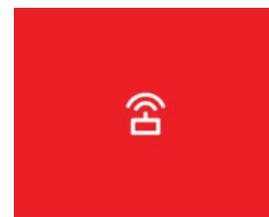
## RSTAR AFFINITY FIELD APPLICATION

Installed on a mobile device (smartphone, tablet, or laptop) to provide flexibility and access to hard-to-reach sites out in the field, this application can claim or un-claim loggers to and from established sites and their RSTAR Affinity Gateways to transmit data.



### QR Code Scanning

Quickly add devices to sites by scanning their QR Code with your device's camera



### Site and Device Configuration

Add/remove devices to/from established sites, and configure them for desired communication intervals



### Store Offline Activity

Store offline activity locally for transmission when a connection can be established to the cloud (or on-premises) server

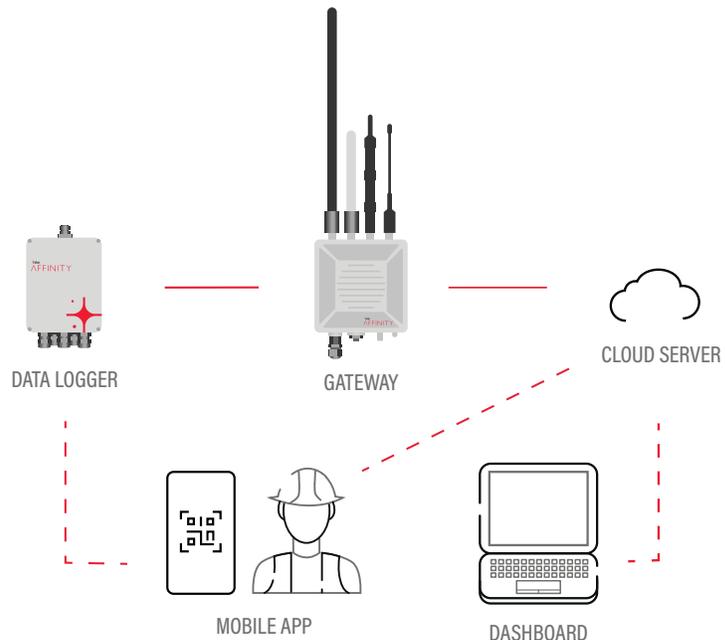


## CONNECTION TOPOLOGY

RSTAR Affinity can be leveraged to fit your current network infrastructure.

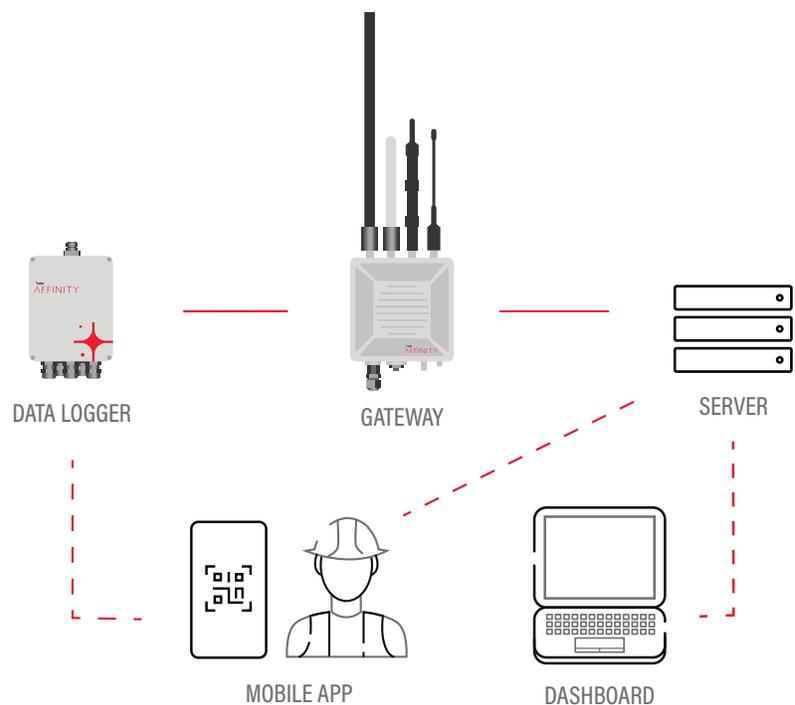
### CLOUD SERVER

In this system, the gateway(s) at each site communicate with a cloud-based server that hosts data, configuration, and APIs for multiple client accounts.



### ON-PREMISES SERVER

This system, either by necessity (no connection the internet is available or feasible) or by preference (security and data sovereignty), cannot or will not connect to a cloud server. In this case, a single site version of the complete RSTAR Affinity server is deployed as an on-premises application appliance.

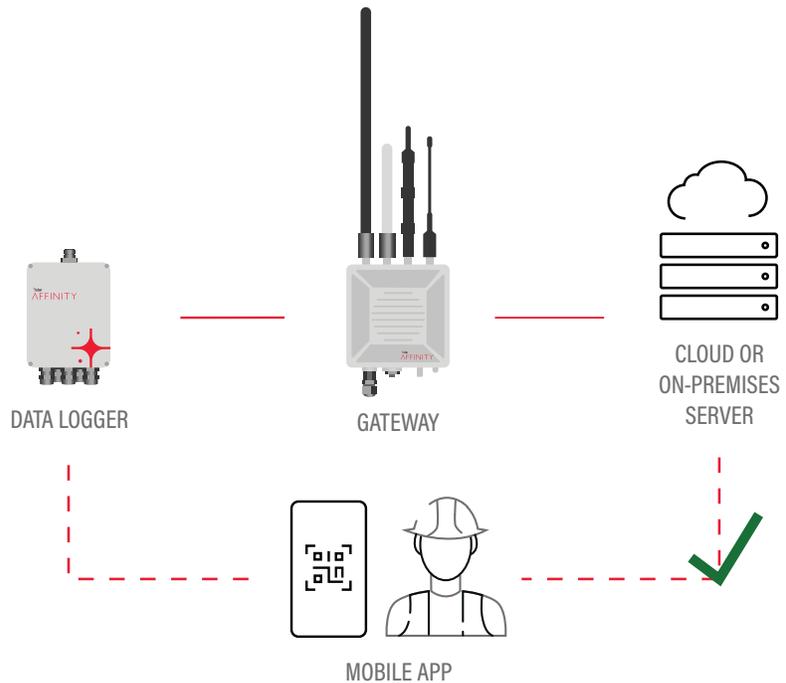


## RSTAR AFFINITY FIELD APPLICATION TOPOLOGY

The RSTAR Affinity Field mobile application can be used to communicate to a logger online and offline.

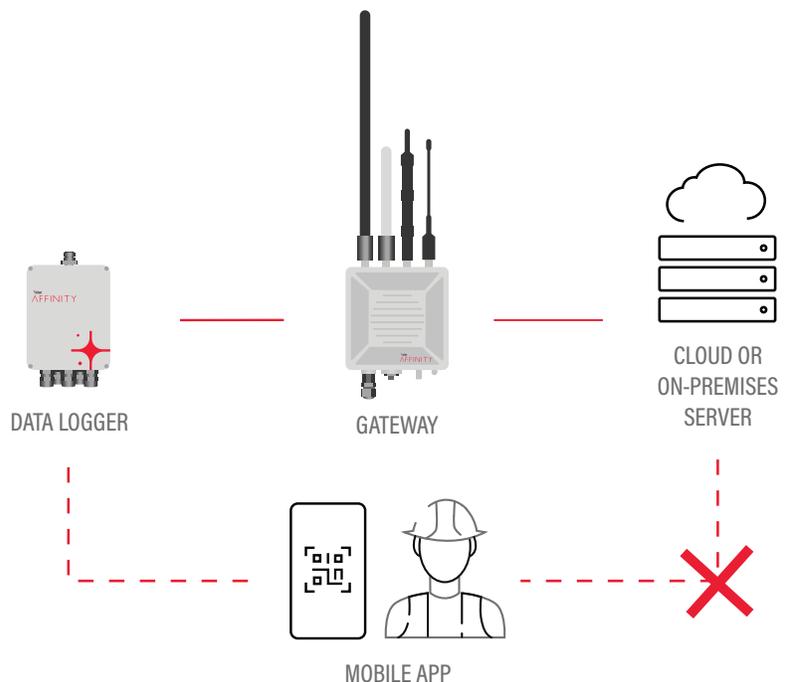
### ONLINE NETWORK CONNECTION

The most common network connection scenario with the mobile application is when a mobile device is within range of a Wi-Fi or cellular data service and is therefore able to communicate with the server to support its ability to manage loggers.



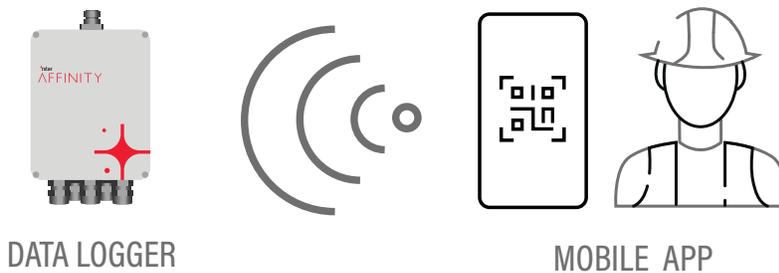
### OFFLINE NETWORK CONNECTION

In scenarios where the mobile device has no data coverage and cannot communicate with the server, any required interactions with the server are cached in the mobile application until a Wi-Fi or cellular data service connection is established.



## BLE DATA LOGGER CONNECTION

The most common method of connecting to a logger with the mobile application is using Bluetooth Low Energy (BLE). The mobile application will detect the BLE beacon of loggers within range and allow you to connect to the desired logger wirelessly. Commands are sent to the logger in small packets that use little of the logger's battery charge.



## MICRO-USB LOGGER CONNECTION

In situations where a RSTAR Affinity data logger has lost power or BLE connection is not possible, a mobile device can be connected to the logger using a micro-USB cable. This connection provides power to the logger, and it will remain responsive while managed by the RSTAR Affinity Field mobile application.



## INSTRUMENT CONNECTION

The RSTAR Affinity Field mobile application can fetch instrument calibration sheets online, read serial number and calibration values from instrument QR codes, and automatically identify instrument class and type based on serial number.