
Choose the right
GNSS smart antenna
for machine control systems
Trimble

Take charge, **not chances**

Between rising material costs, a shallow labor pool and the increasing complexity of projects, construction professionals are beginning to see innovative tech as the key that unlocks higher levels of productivity and profitability.

Machine control is answering that call, transforming dirt piles into profits with game-changing tools that anyone can use. Yesterday's time-consuming methods are giving way to modern devices that simplify tasks, guiding equipment right to where X marks the spot.

Smart antennas enable the machine control systems that let contractors trade paper plans, stakes and spreadsheets for actionable data, getting even more out of excavators, compactors, dozers, motor graders and other machinery.

The resulting precision helps crews work smarter, not harder — with control at your fingertips — saving time and rework.

In a sky full of satellites, the right **smart antenna** is your north star

It's not a question of whether a smart antenna and other machine control components make the site work faster and more seamless, but rather choosing one that's smart enough to outwit common challenges on today's dynamic job sites. A busy jobsite is the wrong place to gamble on a mystery antenna or receiver that could leave you in the dust.

Here are some of the big questions to consider:

- What does one system have "under the hood" that the others don't?
- What can it do, and under what conditions?
- Is it built to rugged standards that can handle harsh temperatures or conditions, like concussion or vibration?
- Are you getting the 24/7 support from highly capable technicians that assist with installation, orientation or troubleshooting?
- Are you sacrificing performance or durability by going with what might appear on the surface to be a bargain?

Avoid hardware with limited or questionable capabilities

The cold-hard truth is, the world is an imperfect place — and there's not always a wide-open blue sky with no obstructions in sight. Any given job site can throw curveballs that interfere with satellite signals, such as:

- Trees
- Existing structures
- Heavy machinery
- Hills / mountainous terrain
- Overhead utility construction like concrete pipes and power lines
- Or machinery working on a slope or in a pit

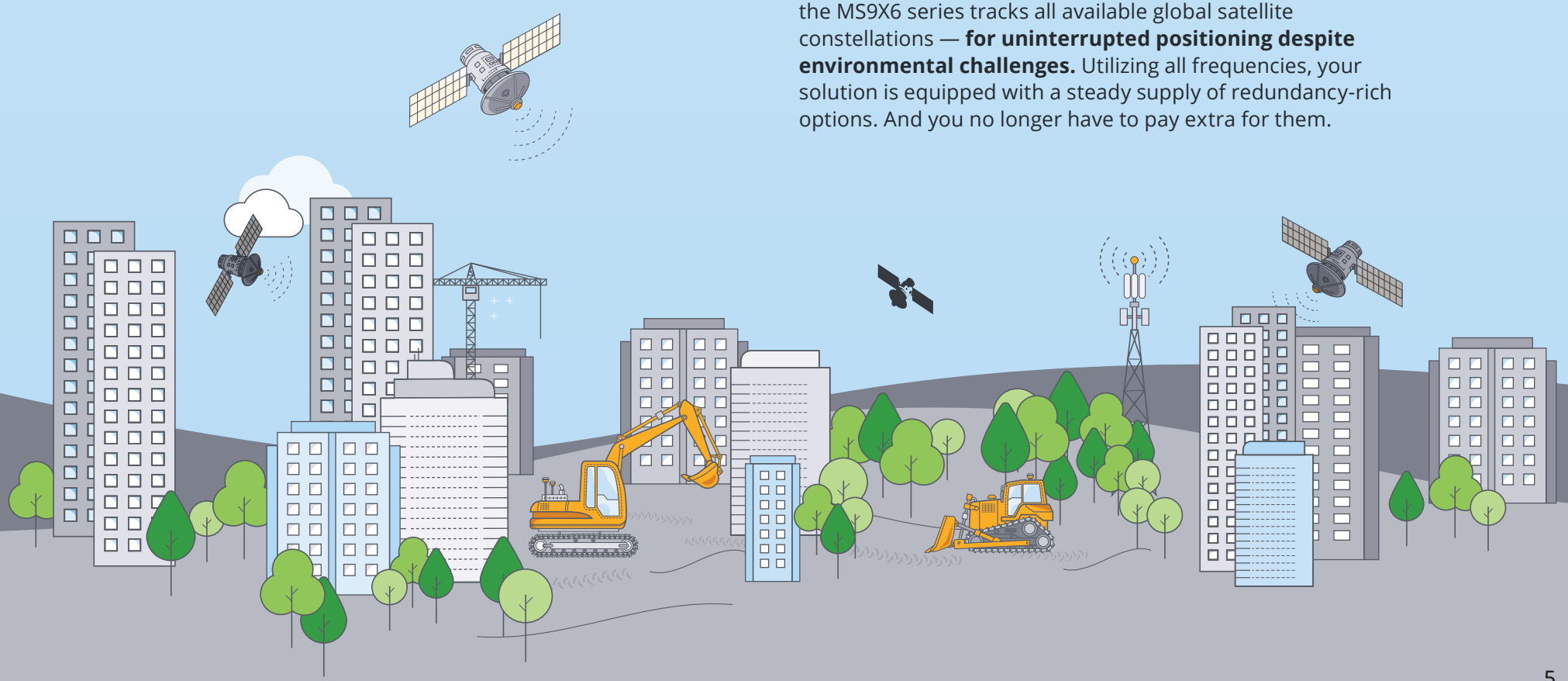
Encountering common obstructions like these shouldn't bring your work to a standstill. **Why risk costly shutdowns when you can choose a receiver that works even under imperfect conditions — safeguarding your productivity, profits and reputation?**

Our smart antennas are powered by the **Trimble ProPoint RTK engine**

With industry-leading Trimble® ProPoint® technology, the Trimble MS9X6 GNSS series delivers precise and reliable results in complex GNSS environments every time, and is part of the complete Trimble Earthworks grade control platform solution.

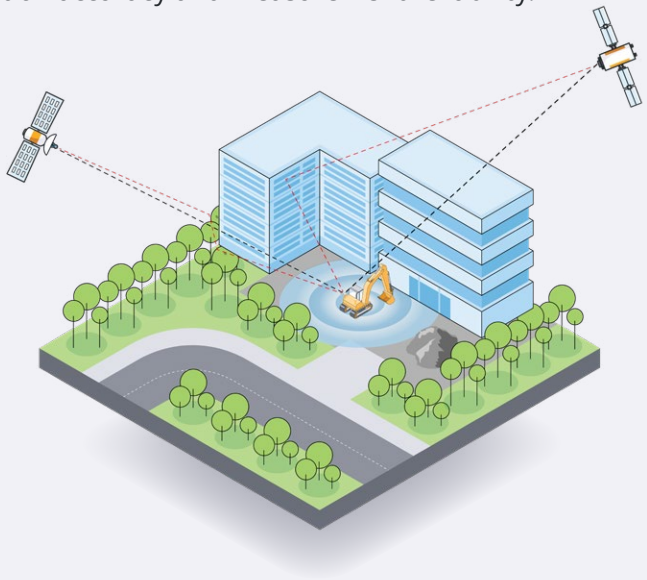
Built with intent, the ProPoint positioning engine inside our latest antennas and receivers brings GNSS, correction services and inertial sensors together. The integration of raw GNSS measurements with inertial sensors combine for a powerhouse sensor-fusion solution that keeps you on target at all times **— virtually eliminating downtime.**

Equipped with Trimble Maxwell™ 7 and ProPoint technology, the MS9X6 series tracks all available global satellite constellations — **for uninterrupted positioning despite environmental challenges.** Utilizing all frequencies, your solution is equipped with a steady supply of redundancy-rich options. And you no longer have to pay extra for them.



Better — quantified

In direct testing with the previous-generation engine in challenging GNSS environments, amid trees, buildings, machinery and other built environments, **the ProPoint engine performed at least 30% better** across a variety of factors, including time to achieve centimeter precision levels, position accuracy and measurement reliability.



ProPoint technology also allows for flexible signal management, enabling the use of all available GNSS constellations, selecting the best signals and filtering out errors for optimal accuracy. This becomes invaluable when individual frequencies and/or constellations are spoofed or jammed. ProPoint makes the necessary adjustments, so you're never left with a signal dropout and a work delay — a valuable bonus when used within mixed fleets.

All this, plus **Trimble xFill**, too!

In the event that there are ever any temporary gaps to fill during periods of radio outage when the base station correction stream is unavailable, Trimble xFill™ corrections enable positioning to continue for five minutes — with centimeter-level precision. That means no positioning dropouts that bring work to a halt. Powered by Trimble RTX® technology, Trimble xFill provides seamless, centimeter-level back-up corrections via satellite if RTK or VRS signal source is interrupted.

Think of it like a steel-toed boot — there when you need it — but still standing by at the ready when you don't.

- Operation time of primary RTK corrections before Trimble xFill can be deployed: **10 min**
- Convergence time once Trimble xFill is deployed: **Zero**
- Maximum (primary correction) outage time: **5 min**
- Find out more about xFill **here**

We’ve raised the bar on **accuracy, ease of use** and **reliability**

Just ask Lasse Hanberg, support manager at SITECH® Denmark

...We have in numerous locations run tests where machines running with the new antennas [work] alongside machines with the older antennas, and it really is much better; more stable, and better at keeping the connection.

...We’ve had multiple cases where the machines had to swap to the new antennas to be able to work. This means we sometimes move them from one machine to another. Although, this leaves the operators giving up the new antennas frustrated, as they feel they have been moved back 10 years in technology.

Choose an antenna that can take whatever your job site dishes out

External factors call for construction businesses to adapt to survive. By augmenting machine control to expand capabilities and be prepared for challenges, modern construction companies are in prime position to:

- **Enhance efficiency, accuracy and productivity** by getting more done during the course of a day
- **Drive sustainability** by getting jobs done faster, optimizing fuel, minimizing wear and tear
- **Offset labor challenges, bridging the skills gap** by simplifying many of yesterday's complex tasks that required higher levels of skill and experience
- **Counteract rising material costs** and leaner budgets
- **Get maximum ROI out of solutions** due to their built-in flexibility and scalability that can be applied to multiple applications and a variety of job sites

Big value in small but mighty packaging

With three options to suit your needs and preferences with varying form factors and capabilities, Trimble has you covered with the **Trimble MS976 and MS996 GNSS smart antennas and the MS956 GNSS Modular Receiver**. All are available in the Trimble Works Plus subscription, as part of the Trimble Earthworks grade control platform. Find out how easy this makes it for you to step up your game **here.**

Inside the MS9X6 GNSS series options:

Trimble MS996 GNSS smart antenna

An integrated GNSS receiver, antenna and isolation system all in a single, durable housing. Built for flexible placement, even on a blade.

Trimble MS976 GNSS smart antenna

A cost-effective alternative for contractors who need a highly accurate GNSS receiver at a lower price point. Optimized for cab or machine body mount only.

Trimble MS956 GNSS modular receiver

Intended for use with a rugged Trimble Zephyr™ 3 Antenna, the compact form factor easily fits in the headliner or within the cab.