

Position
Partners

Shaping New Dimensions

Civil Construction

MACHINE SYSTEMS



Why Position Partners?

We're there when you need us

With more than 30 years' experience in the civil construction industry, Position Partners and its founding businesses have continuously broken new ground in the application of positioning and machine control technology to enable safer, more efficient and more productive construction methodology.



Position Partners' expert team is unrivalled in the industry - our people are passionate about what they do and committed to supporting our customers whenever and wherever they're working.

With more than 250 employees across branches in every state and territory of Australia, no other company can deliver the depth of expertise and boots on the ground support that Position Partners has to offer. We source the latest and most advanced technology from leading suppliers worldwide, ensuring it is fit for the local market and assisting customers with training, service, calibration and support to suit their unique business needs.



Workshop services

Comprehensive product service, maintenance, repairs and advice are provided via our local service centres. We guarantee all our work and can supply calibration certificates to meet QA requirements.



Training

Initial "getting started" training is provided on all systems. Subsequently, a comprehensive range of campus training courses are tailored for beginners to advanced users, either at our offices or on site.



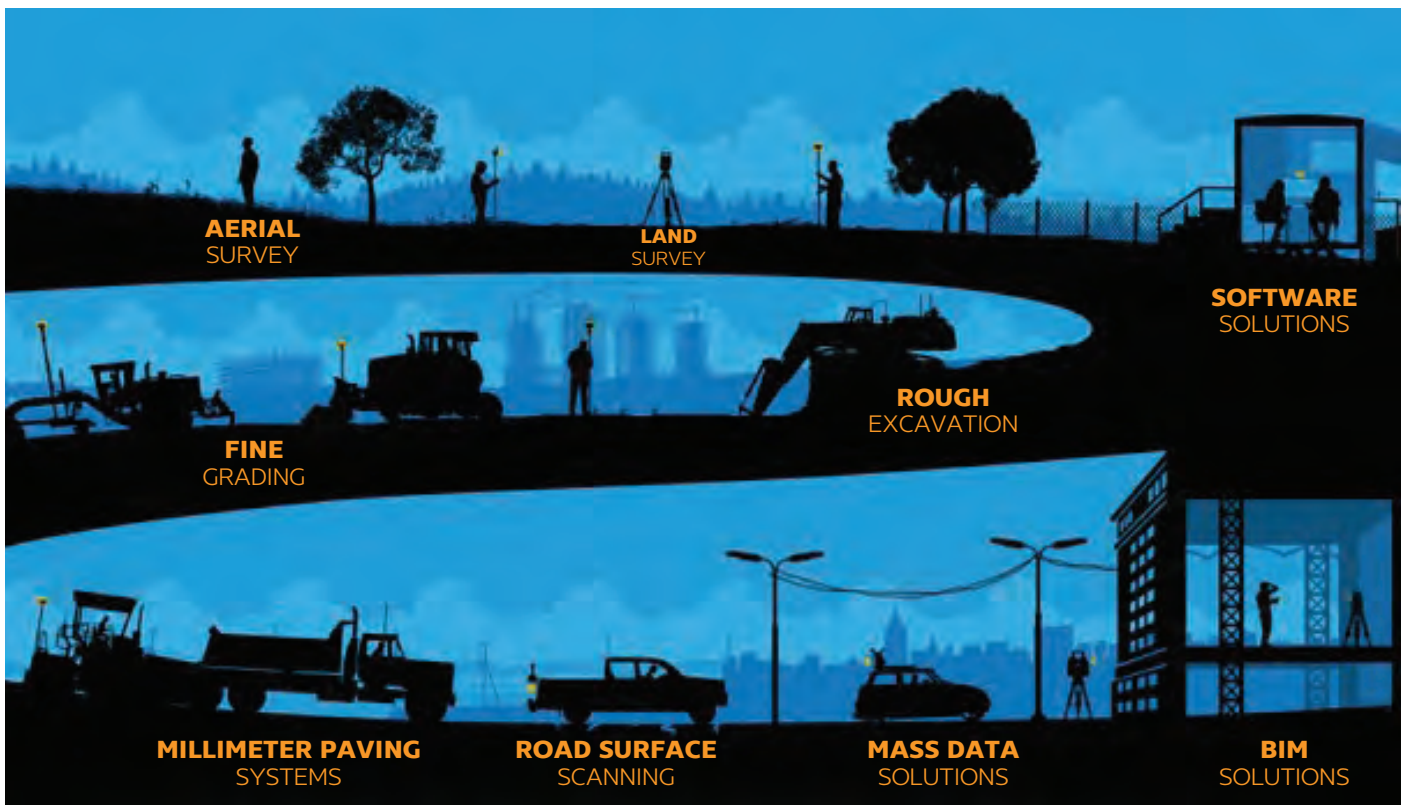
Hire or lease options

The full range of systems, from construction lasers, to GPR and industry-leading RPAS platforms, can be hired or leased to suit any application and provide financial flexibility.

Why Topcon?

The Intersection of Infrastructure and Technology

Flexible | User-friendly | Future Proof



Lasers & 2D Machine Control




Grade lasers | Pipe lasers



Available with either single grade (1S) or dual grade (2S) capability, the RL-200 Series from Topcon offers reliable, repeatable grade measurement.

With exceptional slope range and a large, easy to use screen and user interface, Topcon's RL-200 series combines advanced technology with simple, robust design. The 2S model also comes with a full-function remote, for complete control of the laser from up to 200m away.

Topcon's TP-L5 series of alignment lasers offer a combination of features and technology that are proven to meet the demands of contractors more than any other alignment lasers on the market.

| |  | |  | |  | |
|-------------|---|----------|--|----------|---|----------|
| | Elevation Only | | Elevation & Slope | | Dual Elevation | |
| | auto | indicate | auto | indicate | auto | indicate |
| Dozer | • | • | • | • | • | • |
| Grader | • | • | • | • | • | • |
| Compactor | • | • | • | • | • | • |
| Scraper | | • | | • | | • |
| Skid Steer | • | • | • | • | • | • |
| Tow Scraper | • | • | • | • | • | • |
| Tamper | • | | • | | | |

Applications

- Subdivisions
- Wetlands
- Bulk earthworks
- Carparks
- Industrial subdivision
- Sports fields
- Rail
- Landfill
- Landscaping
- Golf courses
- Batters
- Sewer & drainage
- Gas lines
- Basements
- Footings & foundations
- Dredging

Lasers & 2D Machine Control

iDig | System 5 | GX-55

iDig

iDig is the world's best portable 2D Machine Guidance System for excavators. With wireless, solar powered sensors and a "Clip in - Clip Out" touchscreen the iDig can quickly be moved from machine to machine, offering accurate guidance for multiple attachments on a wide range of jobs, all with one system.

- 2D depth, height and reach with Single and Dual Grade Guidance
- Depth and Alignment Guidance for Auger Drill attachments
- Intuitive with built-in help menu
- Tilting Hitch or Bucket and Blade upgrades available



System 5

Skilled machine operators are becoming scarce. Jobsite pressure is always there. The need for production is constantly rising. Topcon machine control systems bring that bit extra to ensure deadlines are being hit and earthmoving results are accurate to the millimetre. Move between multiple 2D machines.



GX-55

The GX-55 is designed to handle rugged field conditions as well as harness the powerful processing power needed to instantly display real-time position and project design information.

- Integrated light bars for quick visual reference to grade
- Lightweight, compact design
- Large button and touch screen built for operator hands, not office hands
- Responsive, easy-to-use Windows operating system
- Upgradable to 3D applications
- Move between multiple machine types
- 2D and 3D compatibility



Additional Elevation Control

Take your 2D machine control to the next level with Topcon elevation control sensors for tight 2D tolerance and slope work.

- Sonic trackers
- Laser receivers
- Tracker jacks



Mass Haul & Weighing

RDS Weighing Systems

Loadex 100

on-board weighing solutions for excavators

This easy-to-use system gives operators accurate bucket weight information at their fingertips, to increase productivity and reduce machine wear.

With the ability to store data for accurate record keeping, traceability and stock management, Loadex 100 is a flexible solution that can be customised to suit a wide range of earthmoving applications, attachments and accommodate a variety of active jobs simultaneously.



Loadmaster α100

on-board weighing solutions for loaders

Loadmaster α100 has been designed to operate within the fastest loading environments and toughest of conditions compensating for uneven, sloped ground and restricted loading areas reducing cycle times and maximising tons per hour performance.

Loading correctly first time eradicates return trips to the stockpile reducing vehicle movement, fuel usage and machine and tyre wear. Plus, you can opt for a Trade version that enables you to transact from your weight figures.



Weighlog α10

on-board weighing solutions for compact loaders

Loading correctly first time maximises productivity, reduces vehicle movement, fuel usage and machine and tyre wear.

Suitable for use with up to 10 different attachments e.g. buckets or forks, the system can be retrofitted onto compact wheeled loaders, telescopic handlers, forklifts and skidsteer type loaders.



GNSS

The heart and soul of machine control Common Hardware | Swap Components

Machine Types



Applications

- Subdivisions
- Wetlands
- Bulk earthworks
- Carparks
- Industrial subdivision
- Sports fields
- Freeways
- Airports
- Rail
- Landfill
- Landscaping
- Golf courses
- Batters
- Sewer & drainage
- Gas lines
- Basements
- Footings & foundations
- Dredging
- Dams

Final Trim

The Topcon Way: a choice of technology

mmGPS vs LPS - explanation & benefits

mmGPS: This patented and unique Topcon technology combines GNSS and laser positioning for absolute precision grading. A laser like no other, Topcon's PZL-1 transmitter creates a grade control zone for millimetre accuracy within a 40-metre vertical and 1,000-metre horizontal working range. Multiple machines and survey rovers can work alongside one another using the same transmitter without interference, or add more transmitters to deliver an even larger working range on big jobs.

LPS: Topcon's Local Positioning System (LPS) is ideal for high precision applications where the machine does not have open sky visibility and is unable to receive consistent GNSS satellite signals. Working in built up areas or under heavy tree coverage can limit the performance of GNSS-based machine control solutions. Topcon's LPS system is perfect for these conditions, as it uses a Topcon robotic total station to give positioning corrections to the machine.



Multi-Technology Compatible

| mmGPS | LPS |
|--|--|
| Open Sky | Any environment inc. underground |
| Requires GNSS + base/network | Standalone |
| Larger final trim working zone | Restricted by total station range |
| Can use with multiple machines & rovers simultaneously | Independent of other machines |
| Up to 40m elevation change in job, up to 1200m range | Unlimited elevation, but limited to 300m working range |
| Rover compatible | Rover compatible |
| Self levelling | |

Final Trim



| Machines | mmGPS | LPS |
|-----------------|-------|--|
| Excavator | | *World first gyro technology, maintain accuracy for minutes when line of sight is lost until connection can resume |
| Grader | • | • |
| Paver | • | • |
| Dozer | • | • |
| Milling machine | • | • |
| Compactor | • | • |
| Skid steer | • | • |
| Tow scraper | • | • |
| Trimmer | • | • |
| Kerb & gutter | • | • |



Applications

- Subdivisions
- Carparks
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- Footings & foundations

Paving

Relative or Absolute?



Is there a pre-defined design?
Tied to project control and elevation?
Incentive on elevation tolerance?
Incentive for meeting the design criteria?

Yes? Then mmGPS or LPS is the answer



3D Paving – mmGPS or LPS

Free your paving from the confines of stringlines and other linear references and move production to the fast lane.

Advantages:

- High accuracy grade reference covers your entire project – eliminating stringlines
- Topcon mmGPS provides precise vertical data to multiple machines and surveyors
- Handover with transmitters or total stations for a larger workable area
- Pave complex transitions, even through horizontal and vertical curves
- Share components with other Topcon 2D and 3D machine control systems

The most advanced 3D paving system on the market.

Relative to the existing surface?
Incentive based on smoothness?
Incentive based on material quantities?
Looking to correct cross slopes?

Yes? Then 2D or SmoothRide is the answer



2D Paving/Smoothride

Mapping, processing, designing, controlling.

Advantages:

- Variable control to suit real world conditions
- Collecting data safely
- Differential compaction calculations
- Saves on materials
- 100% coverage of work area

Intelligent Compaction

- 100% coverage of work area – know you've covered the whole road
- Identify weak zones in road – save rework down the track
- Add accelerometer & temperature sensor to common Topcon components
- Reporting – compaction, temperature, pass count etc

Proximity Detection Systems

Fully customisable for indoor and outdoor applications

The Blue Electronics Proximity Detection Systems supported by Position Partners can increase safety on site by alerting machine operators, drivers of light vehicles and individuals on foot to their proximity to moving plant on site via small devices fitted to the machine or worn on clothing. Collision awareness technology alerts operators to possible collisions.

The system uses a range of technologies to detect and warn the operator of a potential collision with another vehicle or detection of a worker. Workers wearing a Personal Proximity Device (PPD) are also warned if they get too close to a vehicle fitted with the system.

The system is configurable to meet the customers specific road rules and logs all events and alarms to memory which can be downloaded locally to a USB memory stick or remotely via a modem.

Applications include:

- Vehicle to person protection
- Person to vehicle protection
- Vehicle to vehicle protection
- Vehicle/person to object protection
- Close proximity only detection
- Person tracking
- Adjustable alarm zones
- Points of Interest (POI)
- Event logging
- Optional live tracking and personal protection



Slew Limiting

SensorSafe and 3D-MC



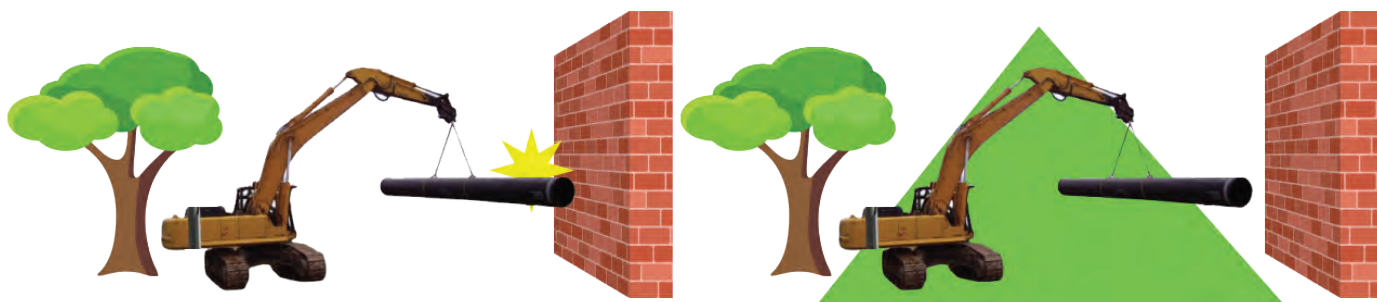
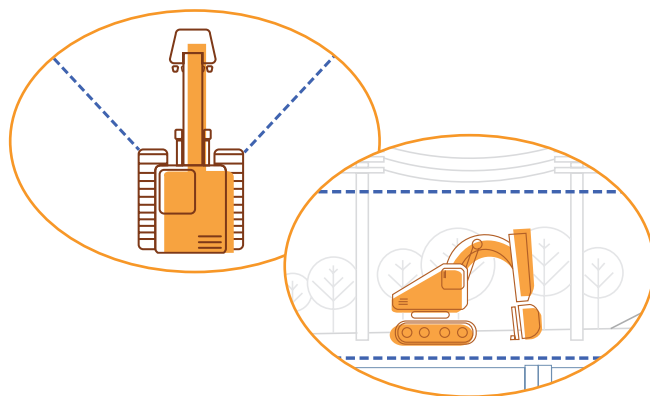
The SensorSafe motion control system is a simple, cost effective slew limiting and height limiting solution designed to guarantee safety and prevent machine damage when operating in confined spaces.

Position Partners has integrated the SensorSafe system with Topcon 3D machine control. SensorSafe allows the machine operator to quickly and easily set left and right slew limits from the operator station, and then restricts the machine to working within the permitted slew sector.

Topcon 3D machine control calculates the angular limits from the bucket to a selected line and sends these angles to SensorSlew. This provides a continuously updated set of limits to allow the excavator to work in the designated working area and not enter an exclusion zone

The SensorSafe system at work

The SensorSafe system allows the machine operator to set a 'safe zone' within which the machine will operate. If the machine operator directs the machine to move outside the 'safe zone' the hydraulic solenoid valve is released to cut off the relevant slew hydraulic service, preventing the machine from moving outside the 'safe zone'.



Customer Testimonials

TBT Earthworks and iDig

“We really liked the simplicity of the system and the fact that it can be moved between multiple machines. We also do a fair bit of demolition and tree clearing so the wireless feature was certainly a bonus for us as there are no wires to accidentally rip off,” Trent O’Neill, TBT EARTHWORKS LTD said.

“Retaining walls are a large part of our business now-a-days too and the fact that it can be used on our auger to determine the angle of hole being drilled was really appealing.”

“We have certainly noticed an increase in efficiency and less material wastage with the iDig system because we can work to a much finer tolerance. This system also saves cost on marker paint as we no longer need to write heights on the ground for the operator to see.”



Digwright Topcon 3D-MC^{MAX}

“This system saves our business time, fuel and money through making our dozer more efficient in bulking and trimming to grade applications,” said Andrew Wright, Digwright.

“The system works well in all types of materials especially when densities and compacted material change frequently. It reduces the blade ride on harder surfaces and seamlessly reacts to softer material, where the blade would normally bite in, the Topcon 3D-MC^{MAX} from Position Partners will correct the blade lighting fast to leave a smooth level finish.”

“Overall, we are extremely happy with the 3D-MC^{MAX} and the install of the system by Position Partners. It looks just like a factory integrated system and not a tacky bolted on after market system.”

“If you are looking to get more efficiency out of your dozer and save time and money on your next project, I can thoroughly recommend a Topcon 3D-MC^{MAX} system,” added Mr Wright.



Megex Civil and LPS

“It’s now very rare for us to use stringlines for a job and our surveyor saves so much time not having to set them up. With the LPS system, he simply sets up the design on the machine and once that’s running he can work on the next job’s plans and materials in the site office,” said Warren Megarry, Megex Civil.

“His time is utilised a lot more efficiently, so that instead of only working on the current job he can plan ahead for upcoming work and stay ahead. It’s given the operators a new lease of life as they are so much more in control of their work and able to see where they’re at on the project.”

“Machine control helps us to work smarter, not harder.”



Ground Technique and Topcon 3D GPS+

“The Topcon 3D GPS+ system has meant that we have no people on the ground for starters and I think we’ve saved ourselves up to maybe four blokes on the ground. It means we can use smaller excavators if required because we’re so much more efficient with what we do,” said Brendan Walsh, Ground Technique.

“It also means there’s no human error. The only human error will come down to the surveyors and designers and you’re always going to have surveyors and designers involved. There’s a lot less material come out because you’re pulling out only the exact amount.”



The Roothing Company and Loadmaster Alpha 100

“The Alpha 100’s extremely easy to navigate around, yet has very little limitations for our type of business,” said Nathan White, The Roothing Company.

“Allowing quick adding of products, continuous viewing of product information and control of summarised data at the end of the day, month or even the end of the year. A quick look up of historic materials produced. This makes it easy to download, back up and view information while in the field.”

“Through our busy construction season, our machines are extremely busy and the Alpha 100 accompanied to the Doosan DL420 requires trouble free running with very little maintenance required. They work very well together.”



Site Solutions



AllDayRTK – Enabling Geo-Precision

AllDayRTK is a Continuously Operating Reference Station (CORS) network that delivers accurate, reliable RTK GNSS positioning. Eliminating the need to setup and maintain a temporary base station, AllDayRTK is a subscription service that gives you increased flexibility and ultimate reliability.



Tokara – The engine behind machine systems

Our award-winning Tokara Link service is developed locally to suit the evolving needs of our customers in the Australian earthmoving and civil construction industry. In addition to providing the essential connection to GNSS networks for your machines, it also enables Position Partners' technicians to connect directly to your machine control system via a small telemetry link to provide fast, hassle-free remote support.

Take it to the next level with Tokara Tracking remote asset management - powered by Topcon Tierra. Your entire fleet, from motor graders to generators to trucks, is easily equipped with low-cost tracking units and managed from a single online portal. From allocation to maintenance, security to billing, our complete telematics solution gives you tremendous visibility and control over all your rolling stock.



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