



Trimble Catalyst Survey Solution

**Introducing the Trimble® Catalyst™ GNSS
system for survey workflows**



Today's Topics



NEW! Trimble Catalyst Survey Solution

A quick introduction of Catalyst's value proposition and positioning with Survey products



Catalyst & Trimble Access Subscriptions

New solution bundles to meet your needs



Trimble DA2 GNSS Receiver

New hardware features, capabilities, etc.



Devices & Accessories

Data collector compatibility and recommended setups



Catalyst Sales Materials

Launch & Materials



Go To Market Considerations

Subscription Strategy & Target Customers



Sales Success Stories

Enterprise, Competitive switches, & cost sensitive customer examples



01

Catalyst Survey Solution Overview



Catalyst Survey Solution

Solution Overview

- Trimble Catalyst for Survey Subscription (yearly)
 - 1 **bundled** subscription for:
 - Trimble Access
 - Trimble Catalyst Survey
 - Trimble Corrections Hub
 - Trimble Connect
- Hardware (upfront purchase)
 - Trimble DA2 GNSS receiver
 - Trimble Survey controller
 - Batteries and other accessories needed





Trimble Catalyst Survey is...



LOWER COST OF ENTRY

Minimal upfront hardware cost
Corrections bundled with the subscription
Less of your money tied up in capital assets



SIMPLE

One part number unlocks the power of Trimble Access,
Trimble Catalyst with full Corrections Hub support



FLEXIBLE

Ready to use worldwide
Scalable for individuals, small teams, and large crews



POWERFUL

High quality performance
Centimeter level precision



Catalyst Survey Customer Segment

Key Aim: Net-new customers - ones that we absolutely would not win in any other way

New Sales Model for Multi Unit Customers

- **Key Messaging** - Focus on medium-term, multi unit projects where users need access to survey-grade GNSS equipment for the duration of a project. *Flexibility* and *scalability* as key words.
- **Example Applications** - Simple stake out & Inspection workflows

Low Risk Entry To Trimble for Competition Users

- **Key Messaging** - A sales tool used in competitive situations to provide a “low risk” point of entry to the Trimble ecosystem. *Low risk* and *flexible* as key words. DA2 as an *on-ramp* to Trimble Ecosystem
- **Examples** - Unlocking the potential of Trimble
Access to an entirely new set of customers



02

Catalyst Survey Subscriptions

Trimble Catalyst + Trimble Access +
Trimble Corrections Hub + Trimble
Connect



Catalyst Subscriptions for Survey

Bundle Details

Catalyst Survey Subscription PNs	Description	Includes
TA-GSURVCAT-YR-00	Trimble Access General Survey with Catalyst Survey - (1 year subscription)	Trimble Access General Survey, Catalyst Survey, Trimble Corrections Hub, Connect
TA-GNSSCAT-YR-00	Trimble Access GNSS with Catalyst Survey - (1 year subscription)	Trimble Access GNSS, Catalyst Survey, Trimble Corrections Hub, Connect

Trimble Access Licence

Subscription Only



Catalyst Licence

Catalyst Survey* with 1cm level accuracy



Trimble Corrections Hub

Trimble VRS & RTX



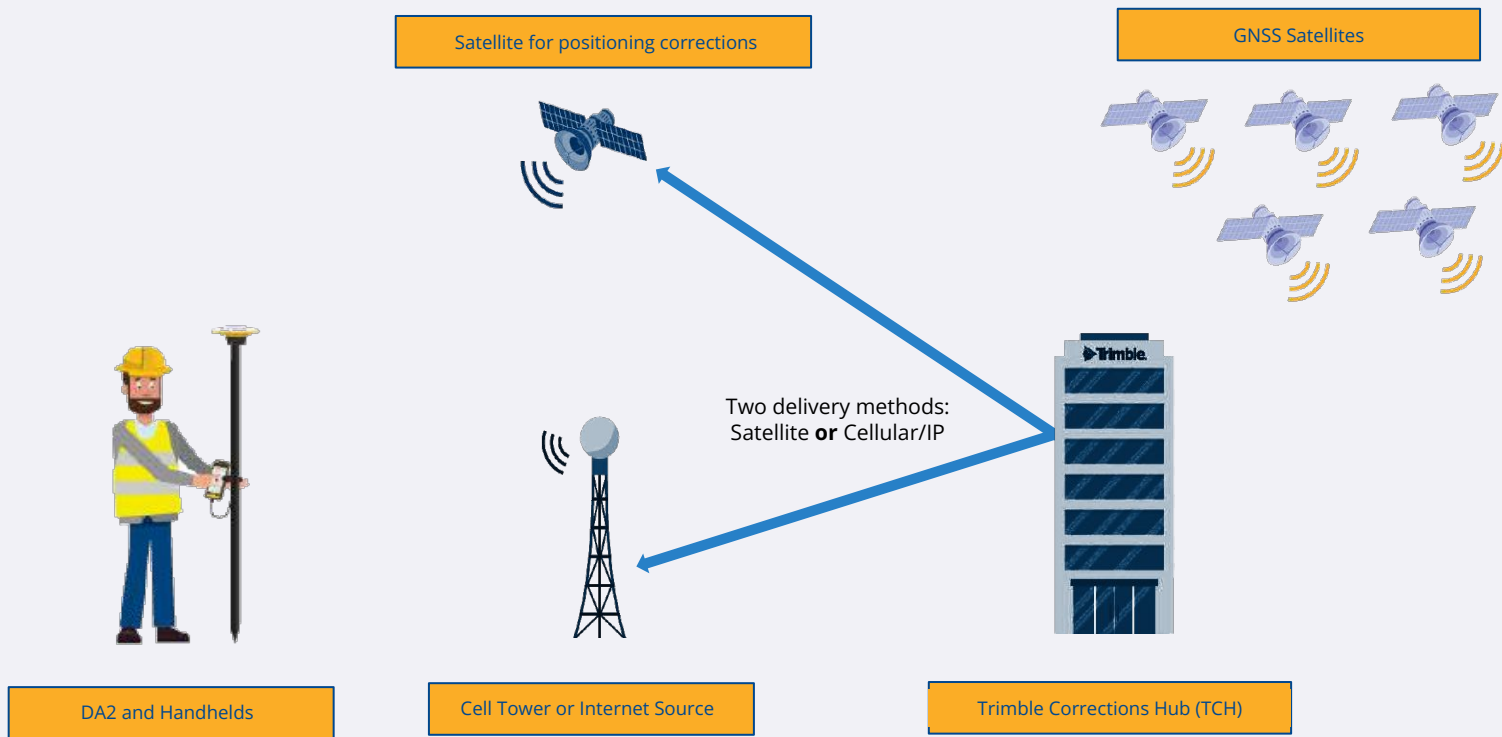
Sign in using Trimble ID

Distributor Notes:

*Catalyst Survey not sold standalone

**Virtual Warehouse stock expires after 12 months if not assigned.





Trimble Corrections

Trimble real-time corrections for accurate and reliable positions worldwide.



Trimble Correction Hub (TCH)



High Accuracy

1-2 centimeter accuracy with a fast convergence time



Simple and Reliable

Robust service and automatic configuration allows you to focus on your job.



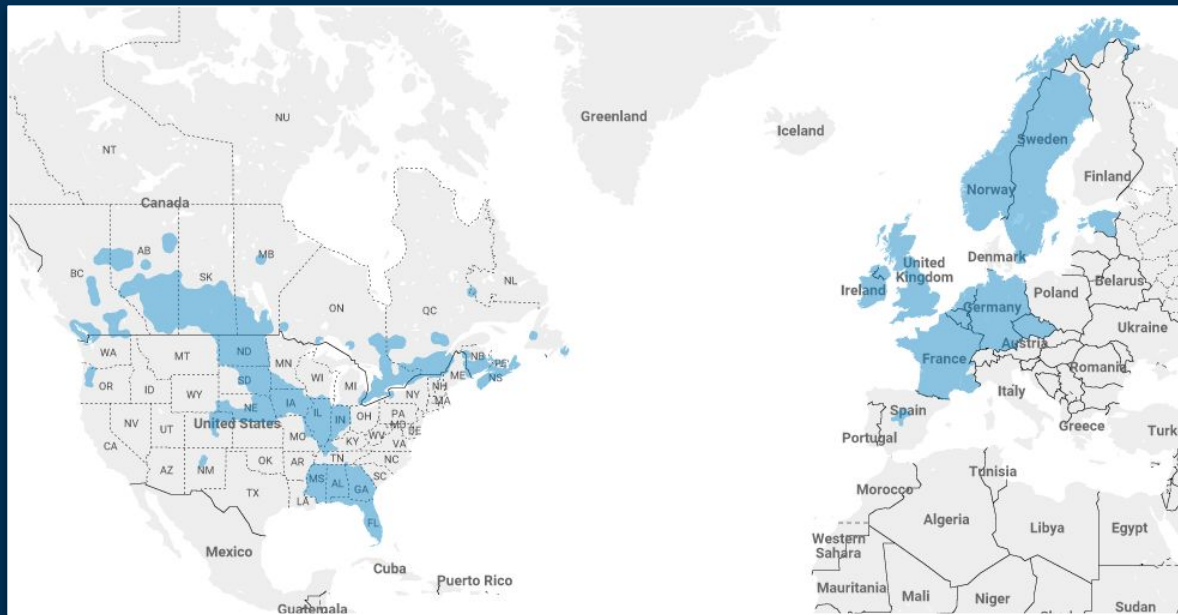
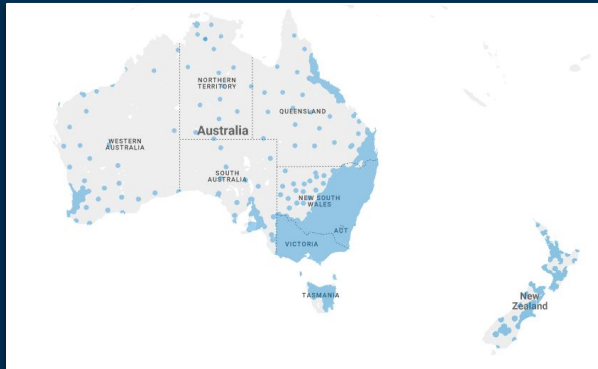
Globally Available

Available anywhere in the world*



1 cm RTK Level Corrections via TCH

- Zones supported by VRS networks in TCH



Corrections Supported

Corrections are included with TCH

Trimble Corrections server hosted by Trimble Advanced Positioning where the incoming request for TCH corrections gets routed to 'best available' source

1. VRS (primary)
2. RTX IP internet delivery (IP preferred for RTX)
3. RTX L-Band satellite delivery (if no internet)

Note: TCH is only available with Catalyst

Alternate correction sources outside of TCH

Standard Trimble Access flexibility utilizing standard "GNSS contacts" workflow

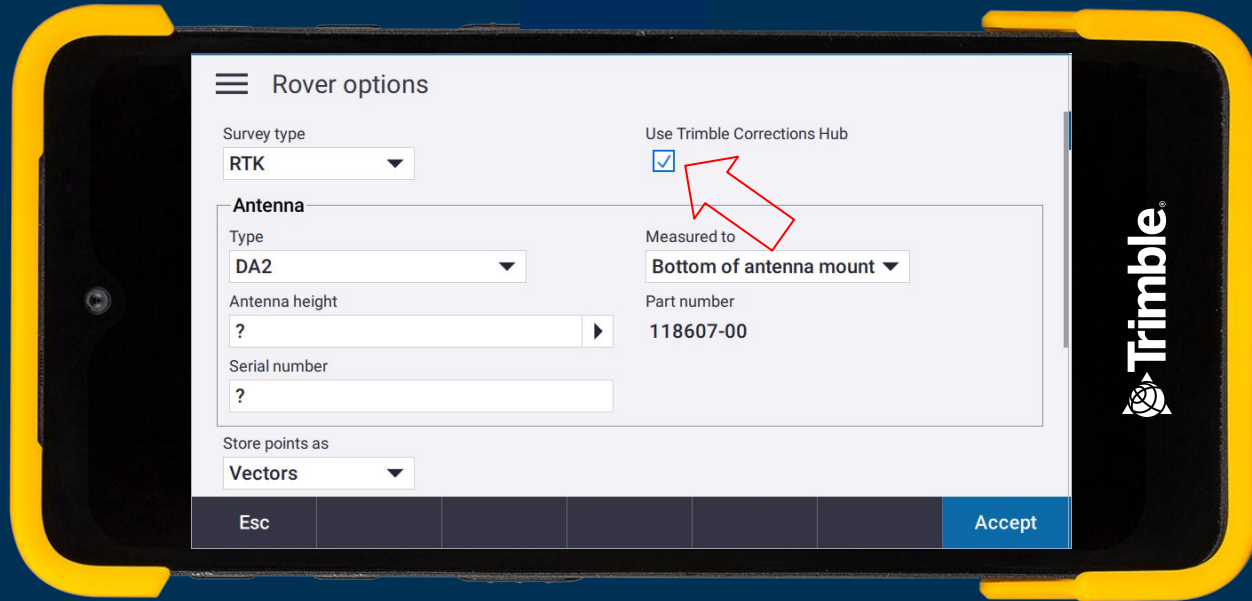
- 3rd party VRS
- Trimble IBSS
- Other internet base corrections

Question:

How do you service GIS customers today with CM accuracy? Is it just RTX workflows or do you tie in other local correction sources via Trimble Mobile Manager?

Catalyst with TA

Using Trimble Corrections Hub

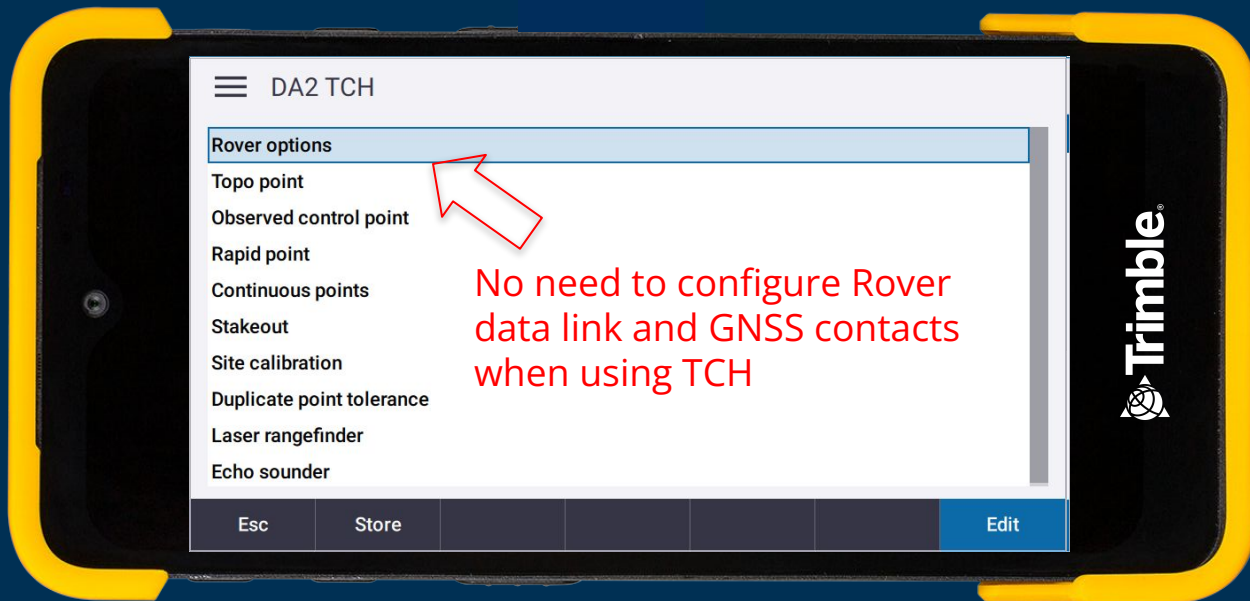


With Catalyst Survey you don't have to worry about GNSS contact,
Just use Trimble Corrections Hub



Catalyst with TA

When using Trimble Corrections Hub then no need to configure 'Rover data link'

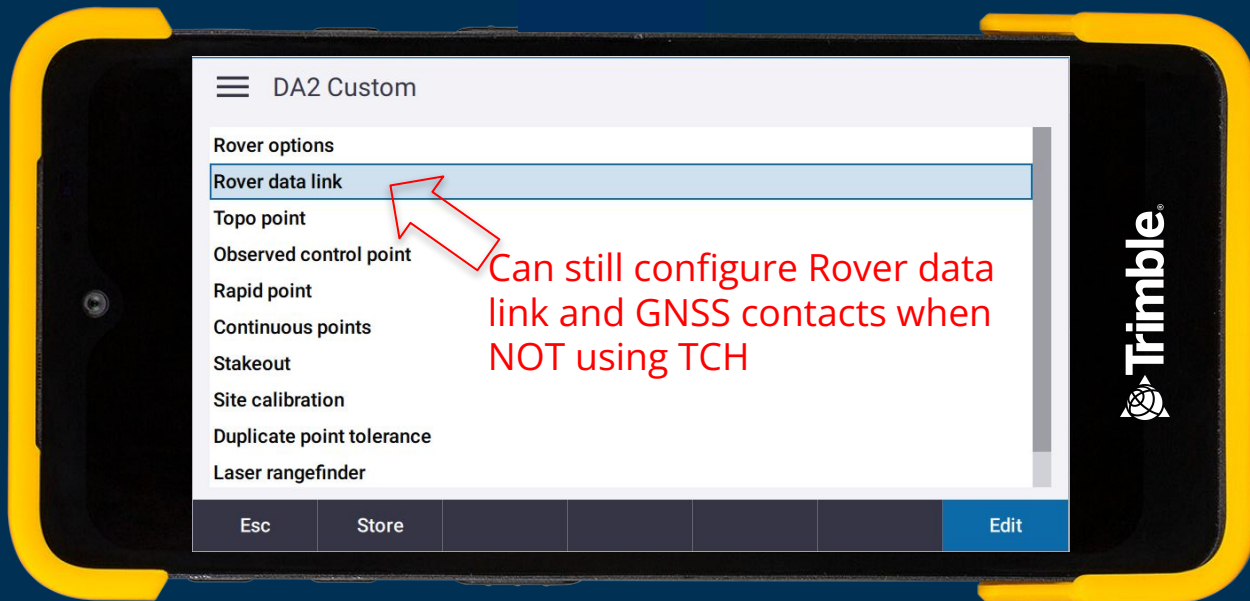


With Catalyst Survey you don't have to worry about GNSS contact,
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Catalyst with TA

User must define 'Rover data link' when TCH not selected



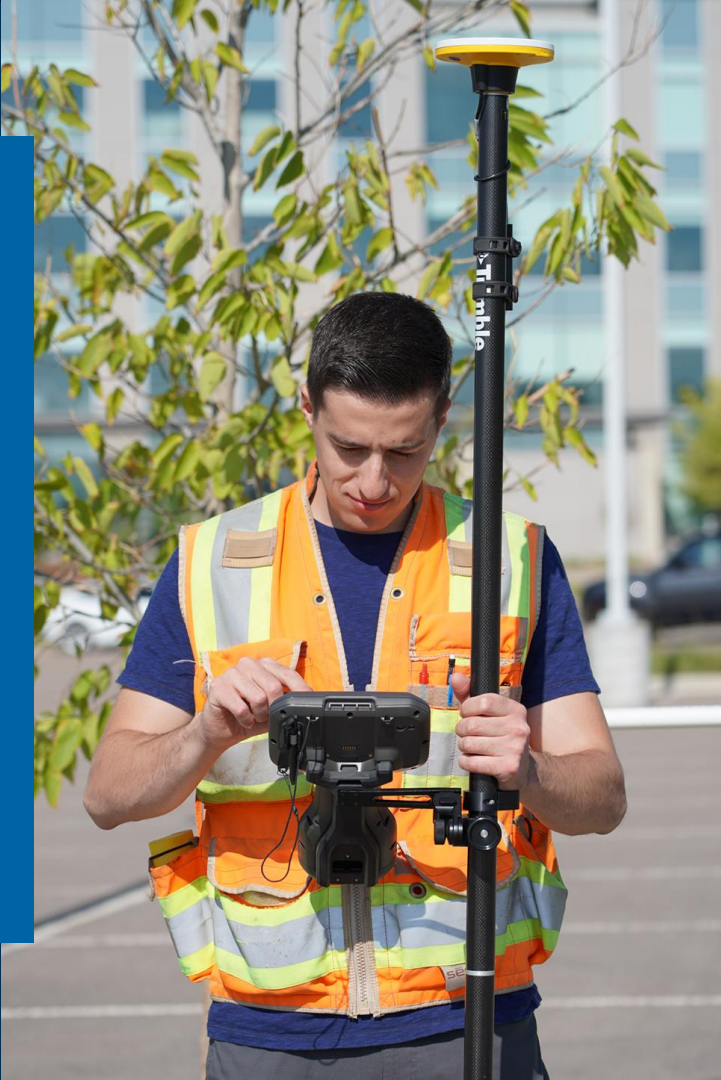
Just like a traditional receiver, you can still configure your own internet correction source under the Rover data link



03

Trimble DA2 GNSS Receiver

For the Trimble Catalyst
Positioning Service



Key DA2 Features

Catalyst
Positioning



ProPoint
Technology



Multi-band
Support



Lightweight

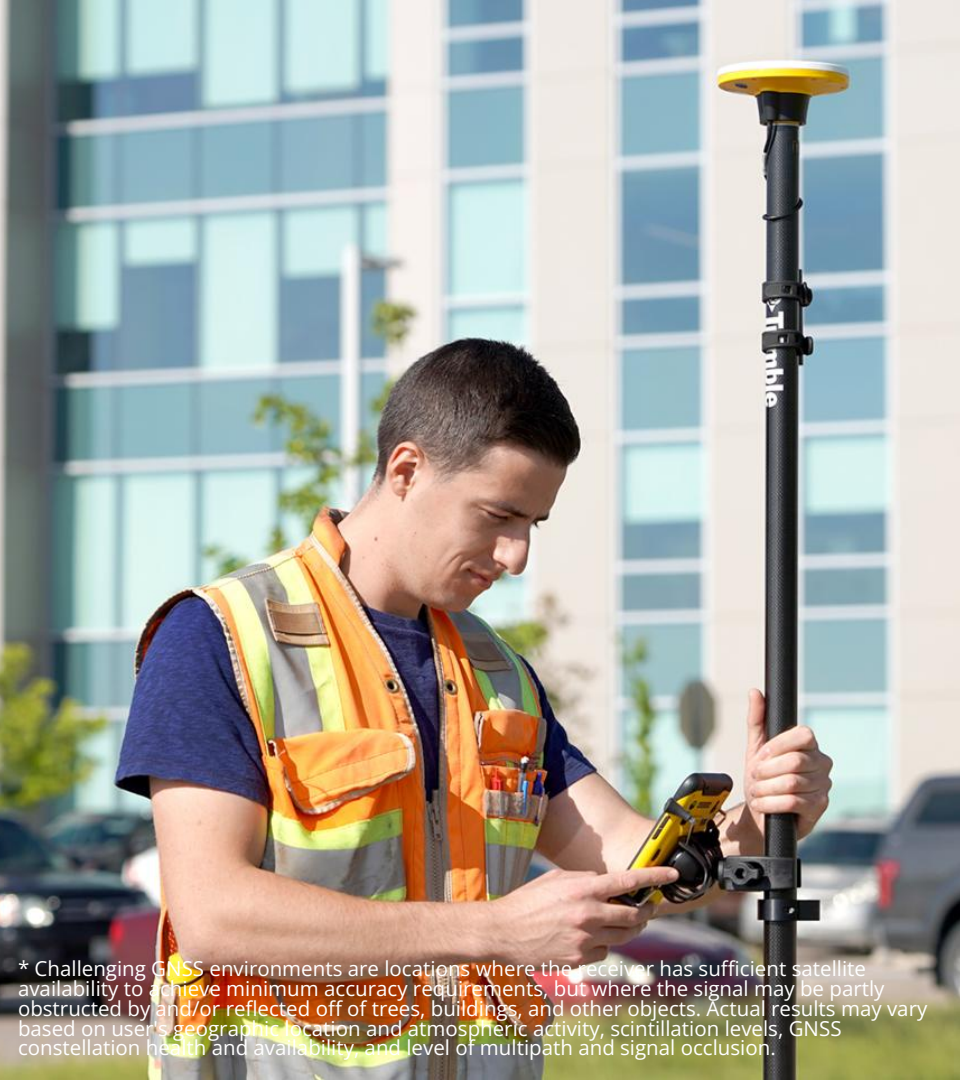


Bluetooth
Delivery



Versatile





Trimble ProPoint® Technology

Improved receiver performance in challenging* GNSS environments, including operating under tree canopy or near buildings & other urban structures.

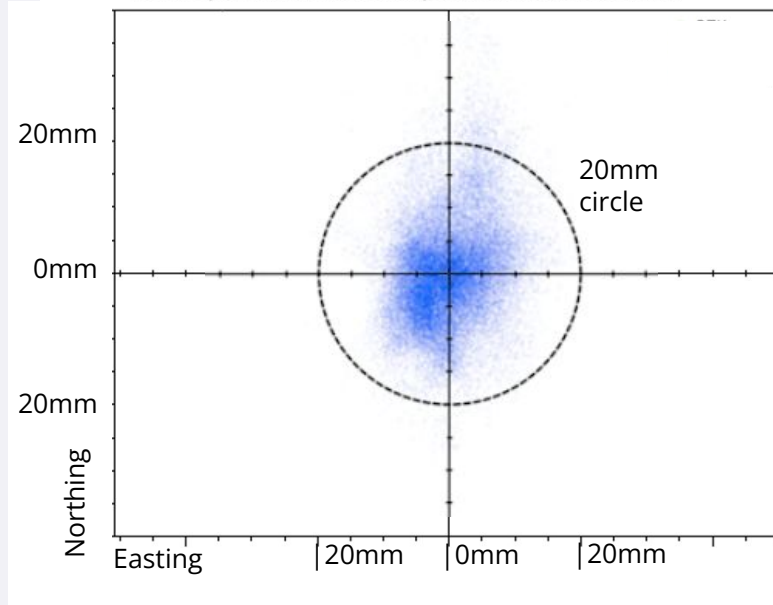
Advanced tracking and GNSS signal management delivers increased yield.

Advanced signal filtering and error modelling provide better protection against jamming and multipath errors.

* Challenging GNSS environments are locations where the receiver has sufficient satellite availability to achieve minimum accuracy requirements, but where the signal may be partly obstructed by and/or reflected off of trees, buildings, and other objects. Actual results may vary based on user's geographic location and atmospheric activity, scintillation levels, GNSS constellation health and availability, and level of multipath and signal occlusion.



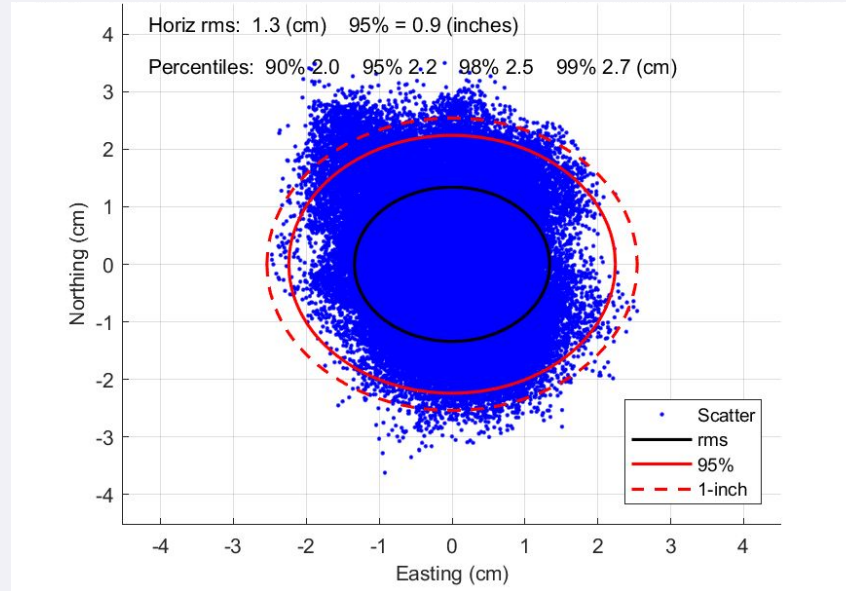
DA2 Performance Testing: Accuracy RTK



DA2 after Hard Reset, RTK 27km, CMRx Horizontal Error
Convergence time after hard reset (cold start) 2 cm in 37 sec



DA2 Performance Testing: Accuracy RTX

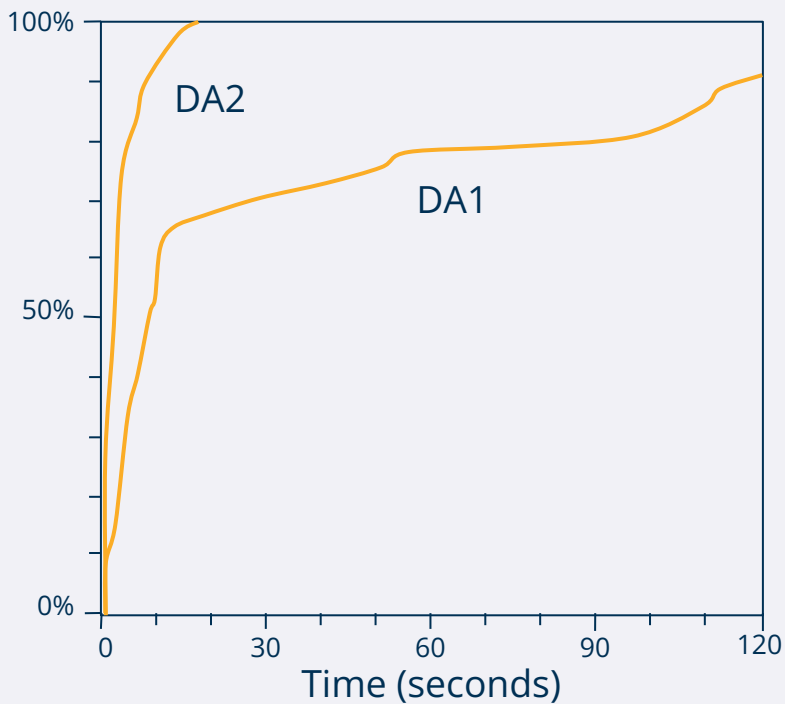


RTX accuracy

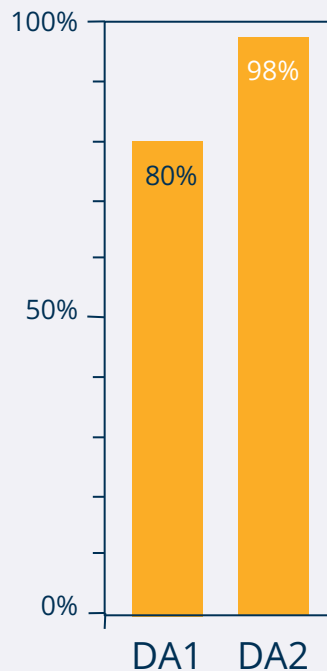
RTX Fast Convergence: 2 cm in 48 sec (68% percentile)



DA2 Performance Improvements



Time to First Fix



Positioning yield (RTK)
Positions with fixed RTK
position / positioning
occupied



GNSS Performance

Network RTK

Horizontal accuracy.....	10 mm + 0.5 ppm RMS
Vertical accuracy.....	20 mm + 0.5 ppm RMS
RTK start-up time (for specified precisions).....	< 1 minute (typical)

Single Baseline RTK (<30 km)

Horizontal accuracy.....	10 mm + 1 ppm RMS
Vertical accuracy.....	20 mm + 1 ppm RMS
RTK start-up time (for specified precisions).....	< 1 minute (typical)

Trimble RTX®

Horizontal accuracy.....	2 cm RMS
Vertical accuracy.....	5 cm RMS
RTX convergence time (Fast zones).....	< 1 minute (typical)

Code Differential (DGPS)

Horizontal accuracy.....	30 cm + 1 ppm RMS
Vertical accuracy.....	60 mm + 1 ppm RMS

SBAS

Horizontal accuracy.....	0.6 m RMS
Vertical accuracy.....	1.2 m RMS

Positioning rates.....	1 Hz, 5 Hz, 10 Hz
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Static GNSS Positioning

Static and Fast Static

Horizontal.....	3 mm + 0.5 ppm RMS
Vertical.....	5 mm + 0.5 ppm RMS

Post-Processed Kinematic Centimeter / Decimeter Configurations

Horizontal accuracy.....	10 mm + 1 ppm RMS (0.033 ft + 1 ppm RMS)
Vertical accuracy.....	20 mm + 1 ppm RMS (0.065 ft + 1 ppm RMS)

Post-Processed Kinematic Sub-meter Configurations

Horizontal accuracy (baselines up to 30 km).....	1 cm + 1 ppm RMS
Vertical accuracy (baselines up to 30 km).....	2 cm + 1 ppm RMS
Horizontal accuracy (baselines over 30 km).....	50 cm + 1 ppm RMS

Carrier post-processing accuracy requires at least 2 minutes of carrier data.

Note: Post-processing results will vary depending on the accuracy of the Catalyst subscription.



GNSS Signal Tracking

Positioning Engine: Powered by **Trimble ProPoint** GNSS positioning technology for improved accuracy and productivity in challenging GNSS conditions (near trees, buildings etc.)

Satellite Signals Tracked Simultaneously:

GPS:	L1C/A, L2C, L5
GLONASS:	L1C/A, L2C/A
SBAS (WAAS, EGNOS, GAGAN, MSAS):	L1C/A, L2C, L5
Galileo:	E1, E5A
BeiDou:	B1, B2A
QZSS:	L1C/A, L2C, L5
NavIC (IRNSS):.....	L5
L-Band:.....	Trimble RTX™ Corrections

Channels: Software-controlled signal management with dynamic (virtual) channel allocation



Mechanical Design

Dimensions (Diameter x Height):..... 128 x 55 mm

Weight (DA2 only):..... 330 g (12 oz)

Weight (DA2 with Carbon fiber rod, Anker power pack)... 1.275 kg (2 lb 13 oz)

Water & Dust..... IP65 (dust proof, rain proof)

Drop (tipping pole fall onto concrete):..... Survives 2 m tipping falls

Drop (free fall onto concrete):..... Survives 1.2 m free falls

Operating Ambient Temperature..... -20° C to +60° C (-4° F to +140° F)



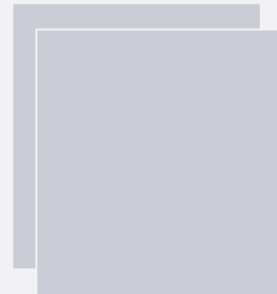
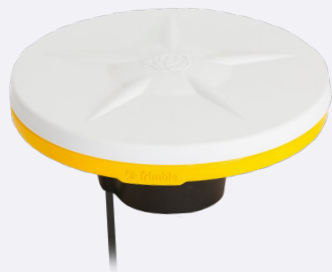
Power & Communications



Bluetooth:	v 4.2
USB:	Power input only
Device compatibility:	Android, iOS
Corrections data protocols:	NTRIP, VRS, RTCM 3.x, CMRx , DCOL
Position output protocols:	NMEA (LLH), DCOL (TPSDK)
Position output platform:	Android Location Service (location sharing) Android Location Extras iOS Location Service Android/iOS: TPSDK integrated apps
External power input:	5V / 1A (via USB-A)
Power consumption:	0.5–2.5 W (typical)



What's In The Box?



DA2 GNSS Receiver
(with USB-A power cable)

DA2 Accessory Pack
(5/8x11 Pole Cap & Battery pack mount)

Documentation
(Warranty Card & Quick Start Guide)

Note: USB Power Bank & Pouch not included as standard.
Configure DA2 with optional accessories to match what customer's need.



Power Solutions



Power DA2 by USB...

Power DA2 with any* USB-compatible power pack or power source.



...including directly from your Controller

Any device supporting **Power Delivery over USB** functionality can power DA2 (e.g. TDC600, TSC5, most Android devices with USB-C). This configuration requires a DA2 to USB-C cable, sold-separately.



Run-time

Run-time depends on numerous factors, including energy capacity & efficiency of the power source, ambient temperature, and total power being drawn by the system...



DA2 standard USB power cable and ANKER Powercore Mini+ (12.1 Wh)

* DA2 is equipped with a USB Type-A connector as standard. USB-C cable option required for most Android/iPad Pro devices and Power Banks with USB-C Power Delivery functionality.



DA2 Run-Time Estimates



ANKER PowerCore 5000 (Model A1109)

Available from Trimble

Rated capacity: 5000mAh / 18.5 Wh

Estimated DA2 run-time: 6+ hours

Trimble PN: 128518-00-BLK-GEO (5 pack)

Power source rated capacity	Estimated DA2 run-time
10 Wh	3.0+ hours
15 Wh	4.5+ hours
20 Wh	6.0+ hours
25 Wh	7.5+ hours
30 Wh	9.0+ hours
35 Wh	10.5+ hours
40 Wh	12.0+ hours
45 Wh	13.5+ hours
50 Wh	15.0+ hours
55 Wh	16.5+ hours
60 Wh	18.0+ hours

Estimating run-time:
Power source efficiency (~0.80 typical)
× Rated capacity (Wh)
/ power-draw (W)

