Low-Cost High-Accuracy GNSS Receiver Trimble Catalyst

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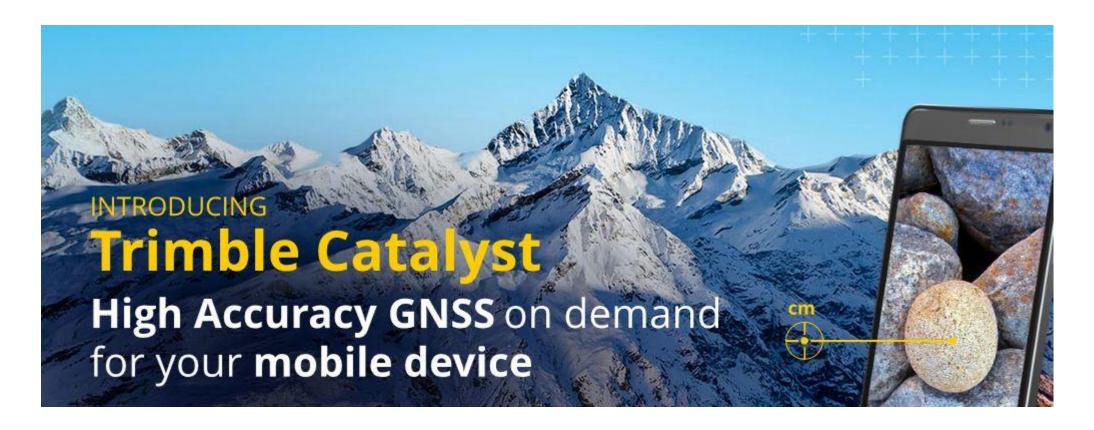
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Training on GNSS – Course (T141-30), Organized by: GIC/AIT, S4D/CSIS and ICG, held at: GIC/AIT, Thailand from 23 – 26 JAN 2018

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Trimble Catalyst

Information on this PPT file are from Trimble Catalyst Home Page.
Please check Trimble Catalyst homepage for further details.
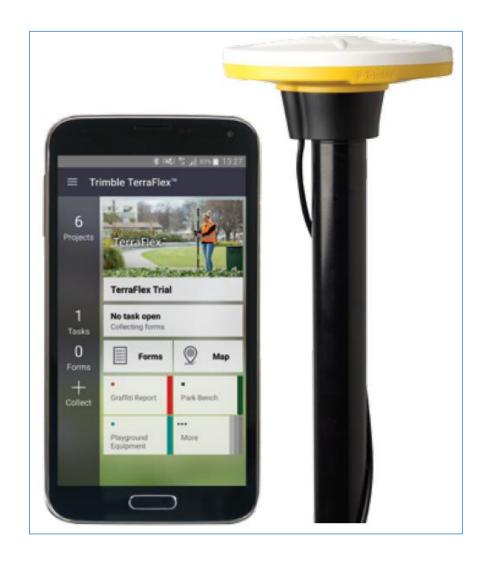https://catalyst.trimble.com/howitworks.htm

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CATALYST – SOFT GNSS Solution

Key Features

- ▶ Cutting-edge Trimble Catalyst positioning technology on your Android smartphone or tablet

- ▶ Positional accuracy based on your needs—1 Meter, Sub-Meter, Decimeter, or Precision

- ▶ A variety of apps available from both Trimble and third party partners

- ▶ Several mounting options for the Trimble Catalyst DA1 antenna and more to come

- ▶ Automatic datum handling via Trimble Corrections Hub

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CATALYST – SOFT GNSS Solution

High Accuracy Positions on Your Device

Collect accurate data faster and easier by simply plugging the Trimble® Catalyst™ DA1 antenna into your Android™ tablet or smartphone. Select the subscription that matches your accuracy needs and choose the applications that meet the needs of your workflow.

Trimble Corrections Hub

Trimble Corrections Hub offers a zero-configuration solution for choosing the best correction source available to you in your current location. The Trimble Catalyst system will choose between SBAS, Trimble RTX, or Trimble VRS Now GNSS corrections depending on your subscription and location while the Trimble Corrections Hub operates in a common datum, dynamically switching as required based on your correction source. Furthermore, you can configure your device to connect to third party correction sources for when you're outside the Trimble VRS Now coverage area; this requires a Sub-meter, Precision or Decimeter subscription.

Subscribe to an Accuracy Level Based on Your Needs

Trimble offers various subscriptions of Trimble Catalyst with the ability to adjust as your needs change. Subscriptions are based on positional accuracy and start at one Meter. Intermediate subscriptions include Sub-meter and Decimeter variants, and for the user that requires maximum accuracy, a Precision subscription is available.

Apps From Trimble and Third Party Trimble Partners

Trimble Catalyst will not only work with applications from Trimble, but also with a variety of apps developed by Trimble partners. For a complete list of Catalyst-enabled third party apps please see catalyst.trimble.com. Trimble Catalyst can also be used with any third party application that is not Catalyst-enabled by sharing its position over location services on your Android device.

Mounting Options for Trimble Catalyst DA1

The Trimble Catalyst DA1 antenna can be mounted on a standard ⅝ inch thread. The threaded adapter is designed to be either unscrewed after each use, or simply left on the pole and pushed on to fit the rubber housing on the bottom of the antenna. Additionally, it can be mounted on a rigid pole with a 1 ¼ inch (32 mm) diameter for applications where mounting on the threaded adapter is not optimal.
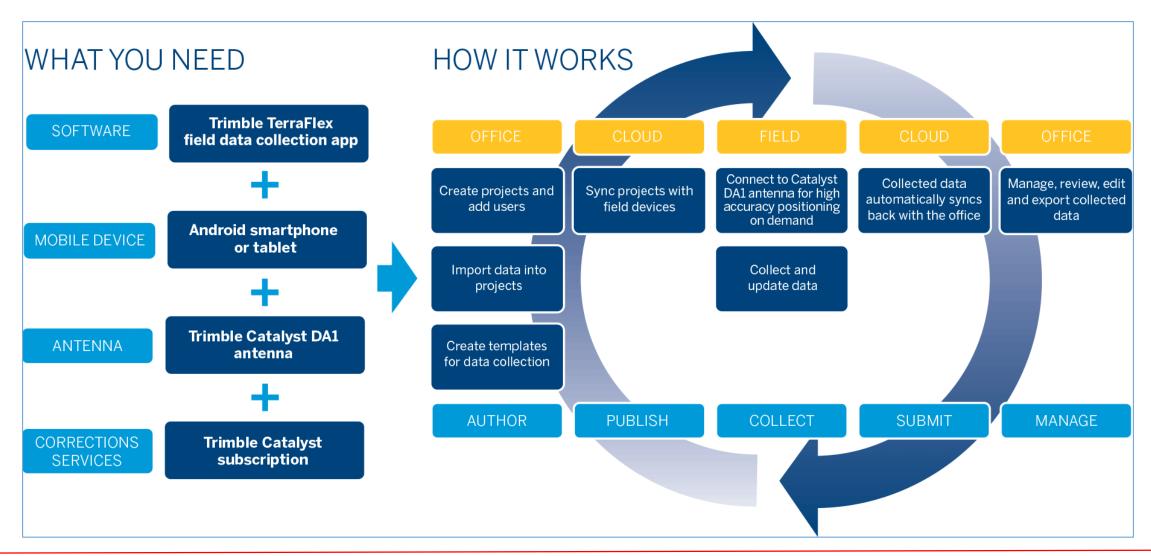
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CATALYST – How It Works?

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CATALYST Datasheet

Trimble Catalyst SOFT GNSS SOLUTION

PERFORMANCE SPECIFICATIONS

Features
- Satellite signals tracked simultaneously:
  - GPS: L1C/A, L2C
  - Galileo: E1
  - SBAS: L1C/A WAAS, EGNOS, GAGAN, L1 SAIF QZSS
  - MSS (or L-band): Trimble RTX
- Trimble RTX correction services
- Real-time message formats: RTCM 3.0, RTCM 3.1, RTCM 3.2 (recommended)
- Positioning Rates: 1 Hz, 5 Hz

POSITIONING PERFORMANCE

1 Meter Subscription Positioning

Horizontal	1 m RMS
Vertical	1 m RMS
Typical time to first 1 m accuracy positioning	1 minute

Sub-Meter Subscription Positioning

Horizontal	0.30 m RMS
Vertical	0.30 m RMS
Typical time to first sub-meter accuracy positioning	1 minute

Decimeter Subscription Positioning

Horizontal	10 cm RMS
Vertical	10 cm RMS
Typical time to first decimeter accuracy positioning	2 minutes

Precision Subscription Positioning

Horizontal	10 mm + 1 ppm RMS
Vertical	20 mm + 1 ppm RMS
Typical time to first precision accuracy positioning	2 minutes

For all positioning subscription levels with Trimble Catalyst, performance depends heavily on many contributing factors. Accuracy and reliability may be subject to anomalies such as multipath, satellite geometry, atmospheric conditions, and proximity to obstructions such as trees, mountains, buildings, and other structures. Positional accuracy specifications for Trimble Catalyst subscription levels are validated in normal conditions with clear lines of sight to the sky and positional accuracy may degrade quickly and significantly under any of the aforementioned anomalous conditions. If outside of the Trimble VRS Now network and not configured to use a third party network connection, accuracy may be affected. The Trimble VRS Now coverage map is located here.

HARDWARE - TRIMBLE CATALYST DA1 DIGITAL ANTENNA

Physical

Dimensions (W x H)	130 mm x 60 mm (5.1 in x 2.4 in)
Weight	300 grams (11 oz)

Temperature

Operating	−20° C to +60° C (−4° F to +140° F)
Storage	−30° C to +70° C (−22° F to +158 F)
Humidity	95%, condensing/humidity proof
Ingress Protection	IP65
Shock and vibration	Tested and meets the following environmental standards:
Shock	Non-operating: Designed to survive a 2 m (6.6 ft) pole drop onto concrete
Vibration	MIL-STD-810G, Method.514.6 Procedure 1 Category 24
Altitude	MIL-STD-810G Low Pressure/Altitude Method 500.5, Procedures I, II and III (9000 m/29,500 ft)
Salt Resistance	MIL-STD 810G test method 509.5
Chemical Resistance	MIL-STD 810G test method 504.1 Procedure 1

ELECTRICAL - TRIMBLE CATALYST DA1 DIGITAL ANTENNA
- Power consumption is 0.6 W typical (0.85 W maximum)
- Operating times depend on device and use of external power
- Micro USB port for external power

CERTIFICATIONS
- FCC Part 15 (Class B device), ICES-003, CE Mark, C-tick

SUPPORTED ANDROID DEVICES
Use the Trimble Catalyst DA1 digital antenna with Android devices that meet the following requirements:
- Certified USB On-The-Go
- Have an operating system of Android 5.0 or greater
- Have more than 1.4 GB of RAM
- Have a CPU of at least 1.4 GHz and 4 or more cores

When only meeting these minimal requirements, the Trimble Catalyst system may not perform optimally, especially with applications that require high CPU power. For best performance, use devices with Qualcomm® Snapdragon™ 800 processors or greater, or devices that have been tested and validated by Trimble. A list of devices tested and validated by Trimble is maintained at catalyst.trimble.com.

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