I’m Using On-Axis – But What’s My Disto?

On-Axis creator, audio engineer Olavi Köykkä, explains the must-haves and nice-to-haves of laser distance meters when using the revolutionary venue-measuring app.

The On-Axis app has a Bluetooth support for wide range of laser distance meters.

‘The one question that persistently keeps popping up from my clients, is “which *disto* should I buy?”’ says Olavi Köykkä, the founder of OK-Sound and creator of the On-Axis app. ‘Luckily, based on my experience, I have some good pointers to offer for this quandary.’

First of all, to explain the term itself: in everyday English – and tech-lingo alike – the word ‘disto’ usually refers to all hand-held laser distance meters, although it originates from a specific product. The Leica Disto was such a revolutionary precursor in its field that it eventually lent its name to all its successors, too – the exact same way you keep referring to all hot-tubs as *jacuzzis*. And in fact, Leica is still a very potent option for audio technicians, although not by any means the only one.

‘When using On-Axis, there are actually very few attributes that are mandatory or crucial for your disto’, Köykkä confirms, ‘and these attributes can be found in several different devices in all possible price ranges.’

The Must-Haves

What the On-Axis does, is that it automatically creates a complete 3D model of your venue based on your measurements which you can use in your loudspeaker simulation software, so you don't have to manually draw every plane and waste time you could be using for your *actual* expertise: masterminding the sound design.

'This is why we want to automate as much as possible when it comes to venue-drawing', Köykkä explains. 'For me, personally, the On-Axis app saves approximately 60 to 80 percent of the time I would spend drawing, and this is valuable because, due to modern-day production schedules, an audio engineer's time before a show is very limited.'

So, as you very well know, what you want to examine are the surface area of the floor and, if there is one, the profile of the grandstand. For the numbers to be accurate, we need to know two important factors while measuring: the altitude of your meter, which is quite easy to measure with any instrument, and the angle you are pointing it in.

Why is the angle important? Because measuring the profile is just a function of basic geometry. So, the crucial attribute that your disto needs to have, is an **inclinometer**.

But what about Bluetooth? Surely you also need Bluetooth, since you must export the information from the disto to the phone app?

'Not necessarily', says Köykkä. 'You see, there's also the possibility of inputting the results manually. You use the disto to measure, and then you just type the numbers in. But of course, if you're buying a new disto anyway, do yourself a favor, and get one with Bluetooth.'

So basically, what one can defer from the app-creator's words, is that the only single thing that is really a must-have, is an inclinometer. And that's it?

'Seriously, that's it', he nods.

[Editor's note: Actually, it turns out, that even the inclinometer isn't literally mandatory. Technically, you *could* even use a disto without one by pressing the disto against your phone – many of which have an inclinometer these days – and then using them together mechanically. On-Axis even has the ability to work in sync with the inclinometer of the phone. So, it's possible. But it's not exactly recommendable.]

The Nice-to-Haves

Now, since we have an automated app, you probably want to skip manual dialing and use the export function anyway, right?

Well, there are already 15 different instruments that are guaranteed to work together with On-Axis. In addition to these 15, there are some options that have not yet been officially tested but technically should also work. All the supported models are listed in the chart attached.

But if you're purchasing a new one from scratch, you should keep an eye out for a few key features that are not mandatory but strongly recommended specifically for On-Axis users.

Number one is the **Bluetooth support**. It unlocks the export feature and eliminates the need for manual inputting. This we have already covered, and you understand why.

Another useful function provided by the Bluetooth support is **remote triggering**. If you want to make things smooth and soft, your disto should be able to not only export data to the On-Axis app but also receive data from it. This helps especially in one particular problem that every single audio engineer has probably come across at one point or another in their career:

When measuring with your instrument, you need to push a button to operate it. This creates a slight but distracting tremble since you need to make a pressing motion with the same hand you're trying so hard to keep steady. What the On-Axis can do with most of the supported instruments, is that it allows you to control it through the app. This way you're relocating the trembling effect from the measuring hand to the other, thus getting steadier results.

Another way of eliminating this problem is, of course, using a stand. Most distos feature a tripod mount at the bottom, so one can just screw them on and shake their hands however much they please. When purchasing a new device, it's good to check, just in case, that it has one.

And last, but not least, you need a **clearly visible laser**. To make sure that you can see your laser's point in all possible venues regardless of the lighting circumstances, you should consider instruments with a green laser instead of a red one.

However, green-pointed lasers are extremely rare, so you will most-likely have to find other ways to obtain clearer visibility. One possible way to make the laser's point more visible

regardless of its color is by choosing a disto that features a **camera**. Distos come in various price ranges, and they all feature different distance capacities. The distance could vary from anything around 50 meters (roughly 160 feet) to 200 meters (roughly 650 feet) depending on the device. So, if you're investing in a quality instrument and are hoping to measure larger venues, you should probably make sure that the disto not only features **sufficient range** but also has a camera that helps you read your results.

Am I Looking for the Right Product in the First Place?

When speaking of clearly visible lasers and easily readable results, there is actually one more point – a little outside the box – that you should consider.

If your primary field of work is outdoors, for example festivals or outdoor conventions, a disto might not even be what you're looking for at all. One way of getting more accurate, clearly readable results could be abandoning it altogether and switching to a **range finder** instead.

Why? Because instead of mere points or cameras, it utilizes an actual binocular and an invisible laser that are specifically designed for outdoor use.

As far as range finders go, there are only few models that are officially On-Axis-supported, but the app creator Olavi Köykkä can tell you that there are several app users out there who are operating other range finders and just disregarding the Bluetooth export feature. Once again, the only crucial factor is the inclinometer.

'Since we're not operating with millimeters – we're measuring distances of dozens of yards – the range finder, a basic tool classically used by hunters, target shooters and golf players, is also an excellent option for a sound engineer. Outdoors, you can usually do a lot more with a hundred-dollar range finder than a 2000-dollar disto', Köykkä says.

Sound advice. Particularly for anyone hoping to catch the evermoving On-Axis train.So, that's it. Welcome aboard. Here's what we recommend, and the rest is up to you!

To Summarize

The Must-Haves: inclinometer.

The Nice-to-Haves: Bluetooth support (data export and remote triggering), tripod mount, sufficient maximum range, and clearly readable laser (e.g. green point, camera, or using a range finder instead of a disto).

Bluetooth Compatibility

Bosch

Model	Compatibility
GLM 50C	Has been tested on a real device
GLM 50-27C	Has been tested on a real device
GLM 50-27CG	Has been tested on a real device
GLM 165-27C	Has been tested on a real device
GLM 165-27CG	Has been tested on a real device
GLM 100-25C	Has been tested on a real device
GLM 120C	Not tested on real device but should work
GLM 150-27C	Not tested on real device but should work
GLM 400C	Not tested on real device but should work

Leica

Model	Compatibility
Disto D2	Has been tested on a real device (this laser does not have inclinometer, so only the distance value is sent via Bluetooth)
Disto X3	Has been tested on a real device
Disto X4	Has been tested on a real device
Disto D510 (E7500)	Has been tested on a real device
Disto D810	Has been tested on a real device
Disto S910	Has been tested on a real device
Rangemaster CRF Pro	Has been tested on a real device

Laser Tech

Model	Compatibility
Laser Tech TruPulse 200i	Has been tested on a real device
Laser Tech TruPulse 360i	Has been tested on a real device