

# Matterform Founders

## Discuss Their 3D Scanner



**E**ven the mainstream media has been covering 3D printers and how they are going to revolutionize manufacturing, especially for small businesses (see “Tap New Technologies To Produce Practically Perfect Prototypes” at [electronicdesign.com](http://electronicdesign.com)). So if 2D printers have 2D scanners, why shouldn’t 3D printers have 3D scanners? The Matterform 3D Scanner costs less than \$600 (see the figure). Company cofounders Adam Brandejs and Drew Cox explain the technology.

**WONG:** Tell me about the scanner.

**MATTERFORM:** It’s the world’s first truly affordable 3D scanner for anyone! It allows you to take a physical object and turn it into a digital 3D model on your computer. From there, you can print your file on any 3D printer or online printing service or use the model you created in an animation or video game. It’s lightweight, portable, and compact, making it easy to integrate into your workspace. Anyone can use it. End of story. Unfold it, plug it in, place an object on the scan bed, and press go! It’s that simple. Really.

Not only is it the first affordable 3D scanner, but for the first time ever in the home 3D makerspace comes a product that you can actually be proud to have on your desk. Long gone are the days of laser-cut wood and threaded rod projects. Get creating and scanning right out of the box. When not in use, the scanner easily folds and tucks away on a shelf, and because of the built-in handle it also makes it easier for you to transport it should you ever want to.

Its high-resolution scan is created with a high-definition camera and dual lasers. All scanners are fully assembled and tested prior to shipping. There are no kits here. Its easy folding design makes storage or transport simple. Multiple quality

settings can be chosen, but an average scan is 3 minutes. Scan objects up to 190 mm by 190 mm by 250 mm (7.5-in. diameter and 9.75-in. height). Dual stepper motors provide full software control over the scan bed and the z-axis. See the point cloud being captured in real time!

**WONG:** How does it work?

**MATTERFORM:** The unit works from a standard 5-V dc power supply and is connected to the PC via a single USB 2.0 connector. The software was designed from the ground up and works

seamlessly with the hardware. Free to use and download, the software is available for PC, Mac, and Linux. Whether you’ve used 3D software before or if you’re just getting into it now, you’ll find the software was designed to be as easy as possible. After a one-time setup, scanning becomes as easy as one click. We know you want to spend your time creating things and being creative, not calibrating, tweaking hardware, or figuring out yet another tool.

Because the scanner is one solid desktop device, the objects you scan are accurate and precise. Unlike software-based solutions, it gives dimensional data, making 3D scans far more useful. We’re aiming to make the 3D files compatible with all major CAD packages, 3D modeling software, and 3D printers. Currently, models produced from the



The low-cost Matterform 3D scanner is the ideal complement for 3D printers.

scanner can be saved as .STL, .OBJ, and point cloud .PLY formats, making it easy to integrate scans within existing systems, such as 3ds Max, Maya, SolidWorks, Cinema 4d, Google SketchUp, Rhino, and TrueSpace.

Currently the resolution of the scanner, on a 4-in. figurine, is 0.43 mm at 0.5° scans, with an accuracy of ±0.2 mm. We're quite excited about the current results and are working every day to continue improving the resolution.

**WONG:** How does the scanner compare to other alternatives?

**MATTERFORM:** Other alternatives start at \$3000, so the Matterform 3D Scanner is by far the cheapest.

**WONG:** You used crowd funding to get started. How has that worked out?

**MATTERFORM:** Very well. We've achieved over five times our goal with

over \$400,000 contributed so far.

**WONG:** What future enhancements might be in the works?

**MATTERFORM:** Many! Including color. 

**ADAM BRANDEJS** (left in the photo) is a programmer, sculptor, Eagle PCB junky, hacker, and maker. He has been making things all of his life, from robots and code to sculptural art that tours art galleries all over the world. He was dry walling at 7, picked up his first soldering iron at 10, was programming Commodore 64s at 12, picked up 3DS Max r2.5 in high school, fixed everyone's computer during university, and spent a few years in advertising making Web sites for Audi, Coca Cola, Budweiser, and countless other big name companies.

**DREW COX** (right in the photo) has been an entrepreneur since he was 18 and mak-

ing things since he could move his hands. Professionally, he has been a programmer, artist, art director, and graphic designer. Unprofessionally, he is an inventor, hacker, and mad scientist. His career path has led him to help build brands like Labatt, Budweiser, Audi, Honda, and Coca Cola. His hobbies and passion have brought him to respect the names of Prusa, Sherline, Arduino, and every person who has ever contributed to open source projects.

#### MORE INTERVIEWS ONLINE

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- LSI Fellow Rob Ober Discusses PCIe Flash Technology
- Gumstix Explains How To Cut Time-To-Market Using Modules
- Digia's Lars Knoll Discusses The Qt GUI Framework
- Spansion's CTO Talks About Embedded Charge Trap NOR Flash Technology

## Supertex inc.



### Electronic Line Switch ICs

Device	Switch Resistance	Input Voltage	Breakdown Voltage	Dial Pulse (DP/DP)	Package
HT0638	15Ω (max)	2.0V	375V (max)	-	SOIC-8
HT18	18Ω (max)	2.3V	350V (max)	Active High	
HT19				Active Low	

### Ring Generator ICs

Device	Ring Signal (RMS)	Output Load (REN)	High Voltage Positive Supplies	High Voltage Negative Supplies	External Circuitry	Package
HV430	105V (max)	50 (max)	Yes	Yes	Yes	SOIC-20
HV440	70V (max)	5 or 20 (max)				SOIC-16
HV461	94V (max)	40 (max)	No	No	Self-contained	LQFP-48

### Hotswap, Inrush Current Limiter Controller ICs (Negative Supply Rail)

Device	Input Voltage	UV Threshold Voltage	Supply Current	Features	Package
HV100	±72V (max)	34V (typ)	0.6mA (typ)	Undervoltage (UV) detection circuits, power on reset (POR) supervisory circuits, inrush current limiting, short circuit protection, auto retry	SOT-223
HV101		14V (typ)			

### High Voltage Level Translator ICs

Device	Isolated Output Drivers	Input Voltage	Output Voltage	Input to Output Isolation	Output to Output Isolation	Package
HT0440	Dual	3.15 - 5.5V	6.0 - 10V	±400V	±700V	DFN-10, SOIC-8
HT0740	Single		4.5 - 8.5V		-	SOIC-8

To download datasheets, visit [www.supertex.com](http://www.supertex.com) and search the device number.