Bare Conductive®

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FAQs

This document covers some of the most frequently asked questions about each of our products.

Electric Paint 10ml / 50ml / 1L

- **What can Electric Paint 10ml be used for?**

  The Electric Paint 10ml tube is a great prototyping tool and comes in handy for repairing electronics such as PCBs, key fobs, or even TV remotes. Electric Paint can be used as a liquid wire to draw small circuits, or as a conductive adhesive eliminating in some cases the need for soldering equipment. It can also be used to draw capacitive touch and proximity sensors onto almost any surface. Capacitive sensors created using Electric Paint can be designed graphically or discretely to transform everyday materials into touch interfaces and smart surfaces.

- **What can Electric Paint 50ml be used for?**

  Electric Paint 50ml can be used to screen print or paint capacitive sensors onto almost any surface. It can be applied like any poster paint, with a paintbrush or roller. Capacitive sensors created using Electric Paint can be designed to transform everyday materials into touch interfaces and smart surfaces.

- **What can Electric Paint 1L be used for?**

  Electric Paint 1L can be used to screen print or paint capacitive sensors onto almost any large-scale surface. It can be applied like any poster paint, with a paintbrush or roller, and can be screen printed. Capacitive sensors created using Electric Paint can be designed graphically or discretely to integrate smart interactions into everyday materials and environments.

- **How long does Electric Paint take to dry?**

  Electric Paint is water-based, non-toxic and dries at room temperature in approximately 10-15 minutes. This material dries rather than cures and gives off no fumes during the drying process.

- **What materials can Electric Paint be applied to?**

  Electric Paint is a water-based paint and acts much like other poster paints. It can be applied to a wide variety of materials, including (but not limited to) paper, cardboard, vellum, wood, metal, plaster, some rubbers, plastics and many textiles. Hydrophobic materials such as some glass and plastics will exhibit poor adhesion, though this can be improved by roughing the surface with sandpaper or similar.

- **How easy is it to remove Electric Paint after application?**

  Electric Paint can be removed from most surfaces either with soap and warm water.

- **Can Electric Paint be sealed to make it permanent?**

  Electric Paint can be sealed with paint, varnish, or waterproofing spray. Electric Paint's conductive properties do not degrade, so if sealed and treated properly it can maintain it's performance for years. If you still want to connect to the paint, a section of the paint is must not be left uncoated.

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Touch Board

- **What can the Touch Board be used for?**

  The Touch Board is an easy-to-use capacitive sensing board that can be programmed via the Arduino IDE to create custom sensors. The Touch Board has 12 electrodes, each with the ability to turn almost any material or surface into a touch or proximity sensor to trigger light, sound, or custom interactions. The Touch Board is the best tool to prototype and design capacitive sensors into your environment.

- **How do I power the Touch Board?**

  The Touch Board can be powered and programmed via a micro USB connection. Additionally, it can also be powered from a 3.7V lithium polymer (LiPo) cell connected to the 2-way JST PH series connector. The power switch will switch the board on or off when powered by either power source. If power is supplied over USB whilst the LiPo cell is connected, then the charge LED will illuminate and the LiPo will charge from USB power, regardless of power switch position.

- **How many sensors does the Touch Board have?**

  The Touch Board has 12 electrodes for you to create sensors with. These connect to the MPR121 and provide capacitive touch / proximity sensing.

- **How do I connect to the Touch Board's electrodes?**

  The best way to attach your sensor to the Touch Board is to connect a conductive material, for example Electric Paint, copper wire or crocodile clips, to any of its 12 electrodes. In addition to the 12 wide electrodes on the edge of the board, you can also solder to the 12 pins on the Touch Board. This is great if you want to either add a header or solder wire to the electrodes. The Touch Board is the ideal tool to use alongside Electric Paint or Printed Sensors to create smart interactive surfaces.

- **How do I attach the Touch Board to my project?**

  The Touch Board's flat surface mount design makes it easy to attach to any flat surface. It has 3 holes in the corners that can be used to screw the board directly onto wood, or you can 3D print a case to attach to your project.

- **How do I program the Touch Board?**

  The Touch Board can be programmed using the Arduino IDE and a micro USB cable. It comes with plenty of examples to help you get started.

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Light Up Board

- **What can the Light Up Board be used for?**

  The Light Up Board is the easiest and fastest way to design your own touch light switch using Electric Paint. No programming required. The Light Up Board has six different light output modes: touch, dimmer, proximity, candle, spin and dice. Choosing between the different light modes is as simple as connecting the right combination of electrodes. Use it as an additional light source for your Electric Paint Lamps or in your own bespoke lighting project.

- **How do I power the Light Up Board?**

  The Light Up Board can be powered via a micro USB connection so you can make your project permanent, or keep it portable.

- **How many sensors does the Light Up Board have?**

  The Light Up Board has 6 electrodes which are used to set the mode function of the board and as the interface. Only one to two electrodes can be used as a touch/proximity input at any given time.

- **How do I connect to the Light Up Board's electrodes?**

  We recommend using Electric Paint to connect to the Light Up Board's electrodes, however depending on the output of the project, copper tape, conductive thread, or any other conductive material can be used to create a sensor.

- **How do I attach the Light Up board to my project?**

  The back of the Light Up Board is flat, which allows for easy surface mounting with double-sided tape or adhesive. Additionally, it can be simply and quickly integrated into paper, card or plastic, using our patent-pending twist and lock method. This means the board can be easily removed and reused.

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Pi Cap

- **What can the Pi Cap be used for?**

  The Pi Cap lets you add precise capacitive touch and distance sensing to your Raspberry Pi projects. It also adds high quality audio to your Pi Zero. Its 12 electrodes can be used as an input to control sounds, lights or control data via touch or proximity.

- **How do I power the Pi Cap?**

  The Pi Cap is designed as an add-on board (HAT) for your Raspberry Pi, and is powered from the Pi. A Raspberry Pi is either powered via a micro USB cable or USB C cable.

- **How many sensors does the Pi Cap have?**

  The Pi Cap uses the MPR121 chip and has 12 capacitive electrodes.

- **How do I connect to the Pi Cap's electrodes?**

  The best way to attach your sensor to the Pi Cap is to connect a conductive material, for example Electric Paint, copper wire or crocodile clips, to any of its 12 electrodes. The electrodes are wide enough for 3M screws or nails or can even be cold soldered to with Electric Paint 10ml.

- **How do I attach the Pi Cap to my project?**

  If you are using the Pi Cap with a Pi Zero, then the flat surface mount design allows you to attach the Pi Cap onto the surface and plug the Pi Zero into the Pi Cap. The Pi Cap has 3 holes in the corners that can be used to screw the board directly onto wood. With a standard Raspberry Pi it is easier to connect to the Pi Cap with either wires or copper tape.

- **How do I program the Pi Cap?**

  The Pi Cap has libraries and example code written in C++, Python and Node.js.

- **What makes the Pi Cap different from other capacitive sensing add-ons?**

  The Pi Cap is straight-out-of-the-box easy to set up. All you need to do is plug it into the Pi and install the libraries. The electrodes of the Pi Cap have been designed to allow a range of materials to be connected to them, so not only wires, but also Electric Paint, copper tape or screws. Additionally, the Pi Cap is equipped with a button, programmable LED and audio jack to provide benefits when the Raspberry Pi is used installations and as a stand-alone device.

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Printed Sensors (set of 3)

- **What can Printed Sensors be used for?**

  Printed Sensors are the perfect prototyping tool for designing smart surfaces with the Touch Board, Pi Cap or Light Up Board. They're ideal for quickly testing out ideas, without spending time designing your own patterns, or waiting for Electric Paint to dry. Printed sensors can be cut, folded or concealed to create touch or proximity sensors.

- **Are Printed Sensors waterproof?**

  Printed Sensors are screen printed using Electric Paint and sealed with a water-proof varnish, making them smudge and water resistant.

- **How do I connect Printed Sensors to my board?**

  Every Printed Sensor has 16 exposed (unsealed) nodes, which can be connected to a variety of boards using materials such as Electric Paint, copper tape, crocodile clips, conductive thread or any other standard conductive connector that can be attached to paper.

- **How many Printed Sensors come in a pack?**

  Each pack of Printed Sensors comes with three A5 sensors.

- **Can I make my own Printed Sensors?**

  Electric Paint can be screen printed to create bespoke printed sensors on most flat materials such as paper, wood, cardboard, or any other material you can screen print on. Screen printing is the best way to create flexible sensors as it deposits an thin and even layer of conductive paint.

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Electric Paint Circuit Kit

- **What is the Electric Paint Circuit Kit?**

  The Electric Paint Circuit Kit packs a simple introduction to electronics into a fun and creative activity. Draw circuits and fold paper templates to bring a miniature paper city to life. If you want to use Electric Paint but don't know what to make, this kit is the project to get started with.

- **What can I learn from the Electric Paint Circuit Kit?**

  Learn how to apply Electric Paint and tune your electronics skills by painting electrical circuits on paper. Observe how an electric current works by connecting LEDs with a battery. A simple break in the circuit demonstrates a switch and gives you control over the LED lights.

- **Do I have to be familiar with electronics to use the Electric Paint Circuit Kit?**

  The Electric Paint Circuit Kit is an engaging activity for anyone, no matter what their electronics expertise. Beginners simply follow the easy step-by-step instructions and a clearly marked template. Drawing a circuit as easy as squeezing a tube and tracing a line. Those with electronics expertise will love the opportunity to use Electric Paint in this creative hands-on activity.

- **What's included in the Electric Paint Circuit Kit?**

  The kit comes with all the components you need to create your paper city; an Electric Paint 10ml tube to draw your parallel circuit, a base and pre-creased house templates, LEDs, and easy to follow instructions to help you put it all together. 9V battery not included.

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Electric Paint Lamp Kit

- **What is the Electric Paint Lamp Kit?**

  The Electric Paint Lamp Kit is the perfect starter project for anyone looking to transform touch into light, no tools, programming, or special skills required. Transform a piece of paper into a touch-sensitive lamp using Electric Paint.

- **How many lamps can I make with the Electric Paint Lamp Kit?**

  The Electric Paint Lamp Kit comes with three paper templates to make a Touch, Dimmer, or Proximity lamp. The kit includes one Light Up Board so you can only make one lamp at a time, but you can easily remove and re-attach the board so over time you can make all three lamps, or swap between them.

- **What can I learn with the Electric Paint Lamp Kit?**

  The Electric Paint Lamp Kit uses a Light Up Board to demonstrate the different ways you can use capacitive sensors to manipulate light. Select different modes or lamps to see how you can use touch and proximity sensing to change light and brightness in your environment.

- **What's included in the Electric Paint Lamp Kit?**

  The kit comes with all the components you need to create three paper lamps; an Electric Paint 10ml tube to draw your sensors, three pre-creased lamp templates, a Light Up Board, a micro USB cable, and easy to follow instructions to help you put it all together.

- **Do I have to be familiar with electronics to use the Electric Paint Lamp Kit?**

  The Electric Paint Lamp Kit is designed so anyone can successfully create a paper lamp, no matter what their electronics expertise. It's as simple as squeezing a tube, tracing a line, and folding a template. This kit is perfect for everyone, from the designer, to the engineer, the creative and the curious.

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Touch Board Starter Kit

- **What is the Touch Board Starter Kit?**

  The Touch Board Starter Kit is the perfect project kit for anyone who wants to explore sensors in their environment, but wants a fun set of projects to get started with our technology. The Touch Board Starter Kit empowers users with all the tools and instructions to complete three projects, building familiarity and confidence with the Touch Board and Electric Paint. The kit has everything you need to make interactive posters, sensing objects, and sensing spaces.

- **Do I need to know how to program to use the Touch Board Starter Kit?**

  Out of the box, the Touch Board is ready for a touch-to-MP3 project, where you touch the electrodes and the board plays an MP3 file. These files are stored on a supplied microSD card and don't require programming to be changed. If you want a different function on the board then you need to change the code of the Touch Board. This is done with the programming platform Arduino IDE and we provide plenty of example code examples to get you started.

- **Can I use the Touch Board Starter Kit to make a different project?**

  The Touch Board Starter Kit is a project-based entry point for creating sensors using the Touch Board and Electric Paint. The kit comes with plenty of paint to complete all three projects and more, so you can learn through the projects and then apply the tools in the kit, and your learning, to designing your own interactive posters and smart sensors. If you want to do a different project, you can use our online resources and example code.

- **What's included in the Touch Board Starter Kit?**

  The kit comes with all the components you need to complete three projects and then some; Electric Paint 10ml tube, Electric Paint 50ml jar, Touch Board, instruction Guidebook, mini speaker, stencil, paper cut-outs, micro USB cable, and much more.

- **What's the difference between the Touch Board Starter Kit and the Touch Board Pro Kit?**

  The Touch Board Starter Kit is a project based kit aimed at making sensors using the Touch Board and Electric Paint through three outcome based projects. This makes it a great tool for beginners or those looking to start from the basics to build their own ideas. The Touch Board Pro Kit is designed for users who are familiar enough with electronics and our technology to develop their own projects with only technical resources as guidance. The Touch Board Pro Kit includes a carefully curated set of tools that are complementary to Electric Paint, the Touch Board, and Printed Sensors, making it easy to start prototyping, but providing no project examples or step-by-step instructions.

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Touch Board Pro Kit

- **What is the Touch Board Pro Kit?**

  The Touch Board Pro Kit includes a carefully curated set of tools and hardware to quickly get you making sophisticated projects using proximity sensors and capacitive switches with Electric Paint and the Touch Board. In this kit we've included all our favourite go-to tools, so you can spend time working on your ideas and your build, instead of sourcing components. This kit provides you with the best tools to use alongside the Touch Board and Electric Paint to make a robust project or prototype.

- **What's included in the Touch Board Pro Kit?**

  The kit comes with our favourite prototyping tools so you can start making your project immediately. It includes a Touch Board, Electric Paint 10ml tube, Electric Paint 50ml jar, Printed Sensors, a resource guide, Touch Board Proto Shield, copper tape and more.

- **What is the Touch Board Proto Shield?**

  The Touch Board Proto Shield provides an easy and robust way to add functions to your Touch Board, and a multitude of ways to connect to your electrodes. It features screw terminals for wired connections, a convenient ground plane for using shielded cable, a prototyping area and all pins brought up to the shield for your project. (This product is only available as part of the Touch Board Pro Kit.)

- **What's the difference between the Touch Board Pro Kit and Touch Board Starter Kit?**

  The Touch Board Pro Kit is designed for users who are familiar enough with electronics and our technology to develop their own projects with only technical resources as guidance. The Touch Board Pro Kit includes a carefully curated set of tools that are complementary to Electric Paint, the Touch Board, and Printed Sensors, making it easy to start prototyping, but provides no project examples or step-by-step instructions. The Touch Board Starter Kit is a project based kit aimed at making sensors using the Touch Board and Electric Paint through three outcome based activities. This makes it a great tool for beginners or those looking to start from the basics to build their own ideas.

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Interactive Wall Kit

- **What can the Interactive Wall Kit be used for?**

  The Interactive Wall Kit is designed for building robust, large-scale, permanent or semi-permanent interactive walls. It's the best tool in the market to quickly and easily add interactive sound and projection mapping to exhibition stands, retail displays, brand activations, museum displays or public space installations. The Interactive Wall Kit comes with all the tools you need to build an interactive wall up to 10m x 10m with 12 touch points. The kit is supported with a range of online tutorials and resources that provide all the information you need to plan your display.

- **What do I need to build an interactive wall?**

  We've designed the Interactive Wall Kit so that it can be installed by anyone without needing specialist skills and no electronics experience is required. All you need is the Interactive Wall Kit and Electric Paint, your creative content (visuals or audio), and a surface to build on.

- **How do I build an interactive wall?**

  Building your installation is easy and fast. With the right planning you can have it set up and running in one to two days. All you need to do is 1) create your visuals, or get someone with experience in graphics or audio/visual content to help, 2) set up your surface, you can source a false wall or get any fabricator to build one and, 3) install and connect, just follow our step-by-step tutorials to connect the sensors and hardware.

- **Do I need to use Electric Paint in my interactive wall?**

  The sensors for your interactive wall can be created in a variety of ways including the application of Electric Paint. While sensors with Electric Paint are the most precise, sensors can be made using copper tape, copper foil, or other flat conductive materials. If you would like to create your sensors with Electric Paint, we suggest purchasing the Electric Paint 1L.

- **Can I re-use the parts in the Interactive Wall Kit for a future installation?**

  The key pieces of hardware in the Interactive Wall Kit have been designed to be easily removed and cleaned so you can re-purpose them for a future project if your interactive wall is a temporary build. The Touch Board, Electrode Shield, Electrode Pads, and shielded cable can all be reused on multiple installations. Where parts cannot be reused, we've made sure to source standard parts so that these can be easily replaced.

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Electric Paint Circuit Pack

- **What can the Electric Paint Circuit Pack be used for?**

  The Electric Paint Circuit Pack introduces a group to the basic principles of a series and parallel circuits, and switches through a fun and creative activity featuring Electric Paint. 10 to 30 participants can connect, decorate, and tessellate 10 circuit city blocks to create a miniature glowing paper metropolis. This project-based kit is the perfect way to engage participants with different skills and interests to Electric Paint and circuits through a creative hands-on activity.

- **What's included in the Electric Paint Circuit Pack?**

  The Electric Paint Circuit Pack comes with10 circuit templates, 60 die-cut paper buildings, 50 LEDs, and step-by-step instructions to guide up to 30 participants in painting, decorating, and connecting a circuit without the need to solder or code. The pack includes all the components and materials required, except for 9V batteries and colouring supplies.

- **What age group and experience level is the Electric Paint Circuit Pack suited to?**

  The Electric Paint Circuit Pack is a great activity for participants of all ages. Whether using the pack to learn about circuits for the first time, or using it as a team-building activity to engage with electronics creatively, the easy to follow instructions, and interactive output make it a fun activity for both young and old audiences. Participants younger than 14 require adult supervision as the kit contains small LEDs which may be swallowed. The Electric Paint Circuit Pack is great for STE(A)M workshops, paper electronics workshops, teaching basic circuits, birthday activities, camp workshops, Makerspaces and classrooms.

- **How long does the Electric Paint Circuit Pack activity take?**

  From start to finish a group should be able to complete the painting, connecting, and decorating activity in 30-60 minutes.

- **How safe to use is the Electric Paint Circuit Pack?**

  Electric Paint is non-toxic, solvent free, air drying and water soluble paint, making it a completely safe material for all ages. Electric Paint can be washed off most surfaces using soap and water. Cold soldering means there is no need for heated elements as part of the workshop.

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Interactive Workshop Pack

- **What can the Interactive Workshop Pack be used for?**

  The Interactive Workshop Pack is designed to equip workshop leaders and educators with a complete set of tools, projects and instructions to run three engaging workshops using Bare Conductive's core technologies. The pack focuses on three creative projects which empower participants to use physical making and programming to combine design and electronics in creating smart interfaces. Workshops can focus on creating MIDI paper instruments to play music, game controllers to play a game, or touch-triggered posters to add interactivity to presentations. Through these projects participants will learn the basic skills required to use Electric Paint, Printed Sensors and the Touch Board to create and design interactive interfaces.

- **How many lessons can I run with the Interactive Workshop Pack?**

  The Interactive Workshop pack includes all the tools you need to complete three different projects with up to 25 participants each. Depending on whether you're purchasing the pack to use in a classroom, at a Makerspace, or as a series of workshops, you can chose to run three separate lessons with the same 25 people to build up their skills, or you can run each workshop with a different group of participants, increasing your reach to 75 participants.

- **What age group and experience level is the Interactive Workshop Pack suited to?**

  The Interactive Workshop Pack uses the Arduino IDE as a basis for programming the Touch Board so it can be used by anyone from age 10 and above. The pack is ideally suited for participants from ages 14+ who are interested in combining interactive design thinking with electronics. The Interactive Workshop Pack is as much about design and physical making as it is about programming, so participants of all backgrounds will find something for them in each project. It requires no previous programming or electronics experience and will suit both beginners or professionals.

- **What will participants using the Interactive Workshop Pack take away?**

  The projects in the Interactive Workshop Pack have been designed to provide engaging project-based outputs for participants to learn about interactive interfaces through the making process. Participants will learn the following: Sensors - how Electric Paint sensors work, how to connect to them using different materials, how to calibrate them to change sensitivity, how to modify their shape and how to paint their own. Programming - how to use the Arduino IDE to program the Touch Board, change code, sounds and calibrate sensors. Design - how to use different materials to create interactive interfaces, how to apply Electric Paint and Printed Sensors to different surfaces.

- **How long does each of the Interactive Workshop Pack projects take?**

  All three projects are designed so that they can be extended by introducing a stage of customisation once the activity is completed. If each activity is run just following the steps in the Guidebook with no additional customisation, they should take approximately: (30min) MIDI Instruments, (45min) Interactive Memory Game, (60-90min) Interactive Posters.