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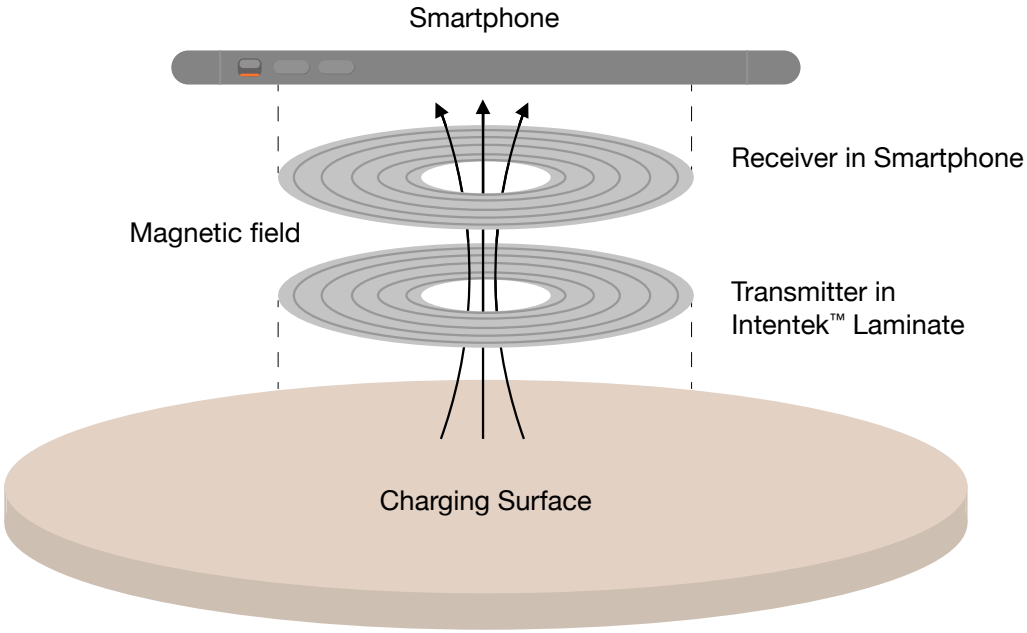
General Charging Information

A. What is Wireless Charging

Wireless charging, also known as wireless power transfer, provides the ability to charge a cell phone without cables. Intentek™ Wireless Charging Surfaces use the Qi wireless charging standard which provides safe and reliable wireless power transfer. The power is transferred from the Qi wireless transmitter to the Qi wireless receiver via magnetic resonant induction. The magnetic field is generated in the transmitter coil(s) by a time-varying electric current. This time-varying magnetic field generates an alternating electric current in the receiver coil which is rectified and used to charge the battery. The diagram below demonstrates this concept.

It should be noted that the receiver (found inside the phone) controls the rate in which the phone charges.



B. What are the WPC, Qi and Qi Certification

Qi (pronounced “chee”) is the predominant standard for wireless charging. The standard is governed by the Wireless Power Consortium (WPC) which has more than 575 member companies.
Qi Certified products have passed rigorous, independent laboratory tests for safety, interoperability, energy efficiency and quality. To be certified, they must work with all Qi wireless products regardless of brand or manufacturer. Qi certification ensures that devices (the power receivers) and chargers (the power transmitters) – always work together for simple and easy charging.

Qi certification and devices that are Qi Certified will insure an optimal end user experience and device protection. There are several areas where the Qi standard is important:

Power management: The Qi standard requires the devices will charge with power management profiles that will protect the phone and the device that transmits the energy.

Foreign Object Detection (FOD): The standard also includes foreign object detection which means that any non-friendly metal placed in the charge area will not turn on (or the device will turn off if it is already on) so that it will not heat up.

Interoperability: Qi certification also ensures that a device will work with all Qi Certified devices.

Backwards compatibility: To obtain certification a Qi device must interoperate on all present Qi devices. In addition, it is required to be backwards compatible to past versions of Qi devices.

C. What is Air Fuel

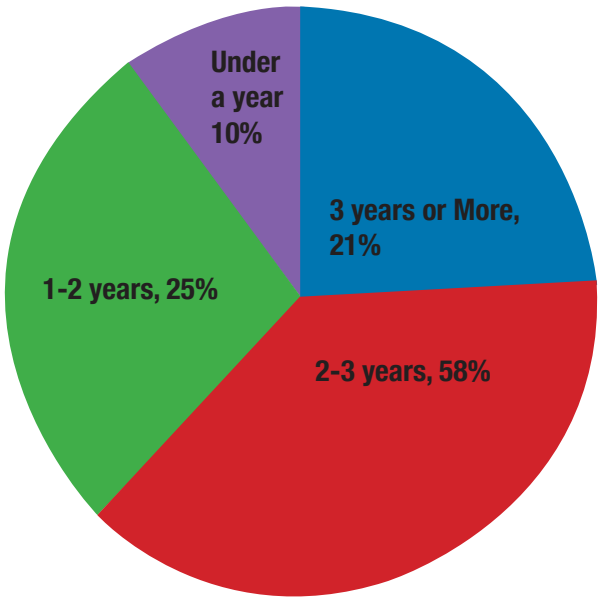
Air Fuel is an alternative type of wireless charging. It is no longer being actively used since Qi became the predominant standard of choice.

D. What percentage of people in North America have phones that can be wirelessly charged

There is no data available to support this question. Our partners at Wireless Power Consortium are constantly doing research to understand the market and we hope the data is available in the future.

What we do know is that there are 366.5M people in North America. In the last 24 months, 150M phones with wireless charging have been shipped. Based on these statistics, we would estimate that at least 1/2 of the population has a newer phone model with wireless charging capabilities. And since people replace their phones every 2.6 years, Formica Group projects that most individuals will have at least one Qi-enabled phone within the next 3 years.

Age of Previous Smart Phone Owned



Source https://www.npd.com/wps/portal/npd/us/news/press-releases/2018/the-average-upgrade-cycle-of-a-smartphone-in-the-u-s-is-32-months-according-to-npd-connected-intelligence/

E. Where is the charging receiver in phones

In most phones, the receiver is in the center. However, some phones have it located toward the top center or bottom center.

F. Which phones can charge at rates higher than 5 watts

Any phone designated as “Fast Charge” can charge at a rate higher than 5 watts.

G. Are there adapters available for phones that do not have Qi receivers

Qi Certified adapters or cases can be used for phones that do not support wireless charging. There are adapters and cases on the market that claim to be Qi Compliant though Formica Group cannot guarantee their quality, interoperability or safety.

General Charging Information Pertaining to Intentek™ Wireless Charging Surfaces

A. What are Intentek™ Wireless Charging Surfaces

Intentek™ Wireless Charging Surfaces feature integrated phone charging technology within the decorative laminate surface for a beautiful, seamless, clutter-free design and superior user experience.

- Embedded technology for an uninterrupted surface
- Fast charge times that rival cord charging
- Large 2”x2” charging zone for a simple drop and charge user experience
- Qi Certified for safe, reliable wireless power transfer and device protection
- Works with all Qi Certified devices
- Durable laminate surface
- Easy to clean and maintain
- Full range of Formica® Brand Laminate designs and colors

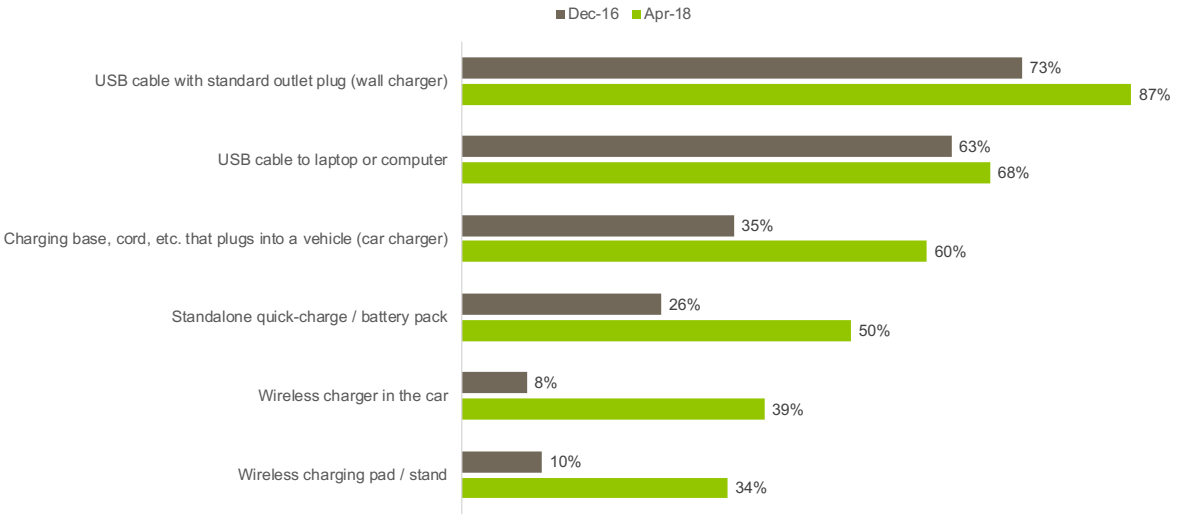
B. Why is Formica Group going into the business of selling electrical laminate

Our founders, electrical engineers Daniel J. O’Conor and Herbert A. Faber, discovered that high-pressure plastic resins could be used in making electrical parts. This innovation, called “Formica,” was used as a replacement for the mineral mica in electrical insulation material.

Based on our history, the Intentek™ Wireless Charging Surfaces are a natural progression for Formica Group. Going back to our roots as electrical material, we have created a surface with electrical properties. Of course, those electrical properties have advanced significantly from our historical product with the incorporation of electrical coils that have been embedded into the laminate surface to enable wireless charging.

Before deciding to innovate in wireless charging, extensive global research was conducted. With the extensive use of Smartphones, the industry has grown and reached an estimated 8.5B USD. And wireless charging is the method of choice.

Eighty-nine percent of consumers surveyed are aware of wireless charging. Based on a study from 2018, it is evident that use of wireless chargers is rapidly growing, with 39% saying they use in a car and 34% saying they use on a pad or stand (vs. 8%- 10% in 2016).



Sources: https://www.imarcgroup.com/wireless-charging-market; Wireless Power Consortium Survey June 2 2018.

C. How does wireless charging work in combination with laminate

Formica Group has invented a way to integrate the coils required for wireless charging into the laminate. Until recently, the only two technologies for power coils have been either Litz wire coils (fine strands of insulated wire twisted together) or PCB coils (copper traces on a printed circuit board). Now Formica Group embeds the power coils into laminate with a patented method that creates a seamless surface with all the features and characteristics of High Pressure Laminate (HPL). Formica Group has partnered with a world class supplier of wireless charging electronics, Convenient Power, who provides the electronics module.

D. Is Intentek™ Technology Qi Certified

Yes, thus providing all the benefits of a Qi Certified product: it has passed rigorous, independent laboratory tests for safety, interoperability, energy efficiency and quality.

E. Is Intentek™ Technology patented

Yes. Formica Group has been an innovator in this field. It has a number of granted and pending patents protecting this technology in the US and internationally.
Also, the electronics module is proprietary. It is made by Convenient Power specifically for Formica Group.

F. How fast will it charge a phone

It will charge a phone almost as fast as a traditional 5W charger plugged into an electrical outlet.

G. How much power does the wireless charger deliver

This version of Intentek™ Wireless Charging Surface will deliver a maximum of 5 watts. Most transmitters for cell phones on the market are 5W. The Intentek™ Technology development team is monitoring the market to understand when phones will be capable of using higher power in the future. This is a potential upgrade for the Intentek™ System.

H. Can Intentek™ Technology be used for things other than charging

The current version of Intentek™ Technology is a Qi Certified wireless charger for Qi enabled devices (mostly cellular phones). Future versions could introduce other technologies integrated into laminate.

I. Which phones will work with the Intentek™ System

Anything that is Qi Certified will charge.

All Qi certified phones will work with Intentek™ Wireless Charging Surfaces. All Apple Inc. iPhones newer than iPhone 7, almost all Samsung®, Sony®, LG Electronics, Nokia, Huawei (by HUAWEI Company), Microsoft® Lumia®, Google Nexus (by ©2018 Google LLC), Motorola (by Motorola Mobility LLC) and others.

Phones that do not have built-in wireless receivers can also be charged with a Qi Certified case or Qi Certified adapters.

There are also shaving razors available with Qi receivers. The new Apple Inc. AirPods also have Qi. To date, there are 2900+ Certified Qi receivers. You can search here for Qi Certified receivers: **https://www.wirelesspowerconsortium.com/products**

J. What future phones will be compatible with the Intentek™ System

Qi is the predominant worldwide standard for wireless charging. Most phone manufacturers recognize that consumers want this feature and will include it in their phones.

K. How can a customer upgrade Intentek™ Technology

Formica Group is following the Qi standard closely and may include higher power options in the future.

L. Will Intentek™ Wireless Charging Surfaces charge an Apple Inc. iPad or Watch

Intentek™ Technology was not designed to charge products other than Qi Certified devices. As of today, Apple Inc. does not use Qi in their iPad or Watch.

As of Apple Watch 5, they are using MagSafe technology with inductive charging. Watch must be charged with the Apple Watch Magnetic Charging Cable.

- https://www.apple.com/watch/battery/
- https://www.apple.com/shop/product/MX2F2AM/A/apple-watch-magnetic-charging-cable-2m?fnode=83

The Apple iPad Pro available as of September 2019 is using USB-C cable charging.
- https://www.apple.com/ipad-pro/specs/

M. Will Intentek™ Wireless Charging Surfaces charge a razor, toothbrush or other small electronics

Yes, the system will work with all Qi Certified charging receivers.

There are some shaving razors today with this technology, found here:
https://www.wirelesspowerconsortium.com/products

While we cannot predict what technology companies will add wireless charging to accessory products outside of phones, we can confirm that if they use Qi Certified receivers, Intentek™ Technology will work with it.

Our transmitter charges at 5 watts. Formica Group expects that newer devices with larger batteries (such as a tablet) will charge at 10-15 watts. The Intentek™ System will work with these, but transmits at 5 watts.

N. What is the maximum thickness a phone case can be and still catch the charge with Intentek™ Wireless Charging Surfaces

4mm or 0.15”

Qi wireless charging will not charge through metal, credit cards or RFID cards because these are all seen as Foreign Objects.

Intentek™ Wireless Charging Surface will charge through and non-metallic material that is less than 4mm.

The System can charge through glass <4mm. (I.e. glass protective cover over table).

The System cannot charge through pop sockets because they are thicker than 4mm.

O. What will happen when two phones are placed on one Intentek™ Wireless Charging Surfaces icon

One phone will charge, and one phone will not. There are no safety issues.

P. Can Intentek™ Technology tell me how many times it has been used and for how long on each occasion

The first version of Intentek™ Technology does not have the ability to collect and store data with regard to use. It is possible that a future version could have this ability, though it would have to maintain Qi standards for privacy.

Q. How big is the charging zone

The charging zone is ~ 25 cm2 (56mm or 2" diameter). This is up to 8 times larger than some competitive single coil charging devices. Intentek™ Wireless Charging Surfaces have been designed to "drop and charge," which means a user can drop their phone on the surface and have it charge without manipulation or additional concern.

Smaller charging zones are difficult to use. Alignment of a phone on a single coil device or smaller charging zones can be finicky and requires careful alignment. In addition, once the phone has been placed on a surface, any vibration or movement will potentially cause the phone to disengage, thereby creating an unsatisfactory user experience.

R. Can Formica Group enable the entire surface of the laminate

No. It would be very expensive and inefficient.

S. Why does the System make a beeping sound when a phone is put on the charging zone

The "beep" indicates that the phone is charging.

When the phone is fully charged, a double beep will sound and the charging will turn off.

If the phone is left on the charger after its done charging, it will beep again when power has been depleted and needs to be charged. The phone internal Qi receiver dictates at what point the phone should begin charging again.

III. Intentek™ Competitive Comparison

A. What are the competitive alternatives and how well do they work

There are a few wireless charging types:

- Pads – A wireless charging pad can be placed on a surface. Cleaning, maintenance and durability can be an issue.
- Pucks – A puck may be placed on top of a surface or a hole may be drilled into the surface to permanently place the puck. Cleaning, maintenance and durability can be an issue.
- Undermount systems – Some systems are designed to be mounted under a surface either with or without a cutout in the top. In internal testing, these types of systems offer a poor user experience.

B. When it comes to number of charging coils, how do Intentek™ Wireless Charging Surfaces compare

It is common to see only one coil, but there are some competitive versions with up to three.

Intentek™ Wireless Charging Surfaces have seven coils, which provides a bigger charge area.

IV. Product Details

A. Will the product come with Peel Coat

Intentek™ Laminate and Backer will have peel coat.

B. How long are the cords on the AC adapter that is provided with the Intentek™ System

The AC adapter is 6.5” long. The AC cord is 3’ and the DC cord is 3.5’.

Should a project require a longer AC cord, they are available for purchase in 6’ and 10’ from Becker by emailing sales@beckerelectronicsinc.com or calling 631-619-9100. Other sizes are available from various manufacturers elsewhere.

C. Can extension cords be used

Yes, as long as building codes and local laws are followed.

D. What sheet size does Intentek™ Laminate come in

4X8 and 4X10.

The decorative laminate sheets will be oversized, like typical high pressure laminate.

The corresponding backer will be available in 4x8 and 4x10.

E. How does a sheet of Intentek™ Laminate differ from standard High Pressure Laminate

The laminate is thicker (2.3mm). The laminate surface incorporates a coil array. The laminate must be thicker than standard HPL to make a functional coil system. While this thickness is similar to a thinner grade of Compact, we call the product a laminate.

Because the laminate is thicker, it must be balanced with the same sized backer (2.3mm). The backer is sold as part of the package.

F. Will this work with another surface type (i.e. solid surface)

No.

G. What components will come with a purchase

The count for each component will vary by order. All kits will contain the following:

- Intentek™ Laminate with coils
- Electronics Module with associated hardware
- Intentek™ Laminate Backer
- AC power adapter

Fabricator Partners can purchase additional accessories from a third-party called Becker.
To order email sales@beckerelectronicsinc.com or call 631-619-9100.
The following are available:

- AC adapter cord in 6’ or 10’
- Wire
- AC adapter cradle and screws and screws

H. Will Formica Group supply our Fabricator Partners with accessory components for fabrication

Fabricator Partners are responsible for purchasing all supplies required to manufacture an Intentek™ Wireless Charging Surface. A third-party partner, Becker, offers some of the accessories.

Formica Group does not have a list of required brands or retail stores to purchase the following complimentary material. The below are for example purposes:

5x7 Acrylic Signage:

- https://www.amazon.com/MaxGear-Acrylic-Plastic-Holders-Display/dp/B07H3PPVXW/ref=sr_1_25?crid=3PPEIMU6L50LG&keywords=5x7+plexi+sign+holder&qid=1565013546&s=gateway&sprefix=5x7+plexi%2Caps%2C134&sr=8-25

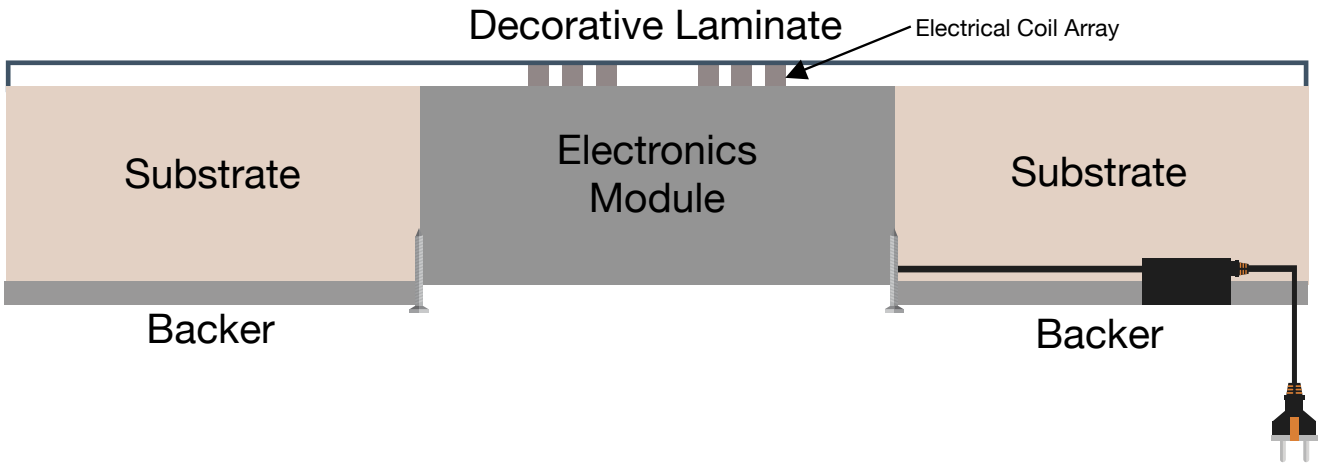
Security Screws: with measurement of 4 mm diameter x 10 mm long,

- https://www.brycefastener.com/?keyword=tamper%20proof%20bolts&gclid=Cj0KCQjwp5_qBRDBARIsANxdcilyviURoGYQ_X0ugtIsxHDns9Ct6Vr9vuQW3fJ1lKS7QXNwbImg5UkaAq4mEALw_wcB

15/16” peel & stick edge banding to cover wire:

- https://www.fastcap.com/product/fastedge-peel-and-stick-edgebanding

I. What does the build-up of the electronics and laminate with coils look like



J. Why does the Intentek™ Electronics Module need a blower

Formica Group has designed a thermal management system to insure optimal performance. This system includes a blower. This thermal management system is necessary for a number of reasons:

1. Heat buildup on the surface during the charging process has a tendency to be identified with the device not working properly. In order to obtain the unique features of the Intentek™ System, the charging elements are very close to the surface. To minimize any heat buildup with the coils so close to the surface, a blower and thermal management system is required.

2. The Qi certification has tight limitations on the amount of heat that can be observed on the surface. The thermal management system is in place to insure that the Qi standards are met.

3. Formica Group is looking to the future. As wireless power extends from phones to other devices, the power requirements will increase. Future wireless power options will require thermal management systems. By developing our system with thermal management, future options are more accessible.

K. How loud is the blower

The blower used in the Intentek™ Electronics Module is specified at 28 dB(A) at 3400 rpm. However, the blower speed is about 1700 rpm in actual use.

To put it into easier terms, the blower is about as loud as a laptop fan.

L. How reliable is the blower

The blower is designed to work continuously for 70,000 hours Mean Time Before Failure (MTBF), which is approximately a minimum of 7 years.

M: Can the blower be covered with a screen to protect it

Given the variety of cover options available, Formica Group does not have a recommendation. Should our customer desire a cover, airflow absolutely must not be impeded. A 2”x2” patch fits nicely over the inlet and a 2”x4” could be used to cover the outlet. An example of this can be found here: https://www.amazon.com/gp/product/B07T8G7L7W/ref=ppx_od_dt_b_asin_title_s00?ie=UTF8&psc=1

V. Design & Ordering Process

A. How customizable are the locations of the zones

Incorporation of Intentek™ Wireless Charging Surfaces into Furniture Design: Tips & Best Practices

Location of the charging zones will vary from project to project. The following points represent tips and best practices that should be considered for placement of the charging zones only. Formica Group is not responsible and assumes no liability for the design, engineering, installation, assembly or structural integrity of the fabricated piece.

- Cavity for electronics module must be at least 1" from all edges of table/top.
- Blower direction can point up, down, left, or right (at 90, 180, 270, 360 degrees).
- Blower inlet and outlet cannot be covered by pedestal, leg, or other obstruction.
- When placing charging zones near each other, we recommend at least 11" is left between center points of the charging icons. The electronic module casing must be at least 1" apart.
- When placing two electronics modules near each other, a blower inlet must be at least 8" from another blower's outlet. This rule is to be followed only if blower inlet and outlet are designed to be near each other.
- If Intentek™ System is going to be used in an enclosed counter (i.e. on top of a cabinet or drawer), the enclosed space must be properly vented. Vent determination is the responsibility of the furniture designer. Venting must be sufficient to support the blower at 2CFM.
- Electronics module cannot be in direct contact with obstructions: edges, screws, pedestals/ legs.

B. How is Intentek™ System designed into furniture

Formica Group's Architectural Engineer will assist furniture designers or fabricators who have questions about how Intentek™ Wireless Charging Surfaces can be incorporated into the furniture design. Formica Group does not design furniture and will not offer these services. It is up to the end customer and fabricator to determine who will create the shop/construction drawings.

C. How would a designer specify location of the zones within a sheet for placement

Formica Group's Architectural Engineer will assist furniture designers or fabricators who have questions about how Intentek™ Wireless Charging Surfaces can be incorporated into the furniture design.

Keep in mind there are some guidelines when it comes to where the charging units can be placed. These tips and best practices can be found on the website. The Architectural Engineer will also be available to assist.

D. How close or far apart can you connect units if putting more than one on a work surface

The electronics module is 7” x 8” and must be kept at least 1” apart from another module. A top can have more than one charging zone.

Formica Group is not responsible and assumes no liability for the design, engineering, installation, assembly or structural integrity of the fabricated piece.

E. Are there any limitations on design or finish

On décor, whatever is stocked in 4x8 and 4x10 can be used to make Intentek™ Wireless Charging Surfaces.

On finish, it is available in Matte only.

F. Can this be used with Envision

We will not be offering Envision upon product launch. It could be available in the future should there be customer interest and demand.

G. Can this be used with Fire Rated Laminate

At this time, it is only offered with standard high pressure laminate.

H. Does the surface need to be completely horizontal to work

It can work at any angle. Keep in mind that phone alignment could get tricky with a completely vertical application.

I. Does a customer have to use a charging icon or can they go icon free

Yes, an icon must be selected.

J. Can the charging icon be customized

Formica Group has provided a selection of 3 icon designs in 4 colorways for the majority of projects. The icon is 25mm in diameter.

The icon is customizable but requires a minimum order of 99 charging zones. A flat fee of $150 will be charged for each icon design at purchase. A custom icon may be 25mm or 40mm in diameter.

Customers selecting this customization option should expect a longer design process, as much like Envision™, we will require legal documentation (ownership of the art) and their review and approval of the icon coloration.

The following must be considered when designing a customized charging icon

1. Formica Group recommends a design that will look good at any direction. We cannot guarantee directional placement of icons.
2. Formica Group cannot PMS or Pantone color match.
3. Icon must be circular with a diameter of 25mm or 40mm. We cannot accommodate unique shapes at this time.
4. Icon must either have border or the background of the icon must be a different shade than the laminate décor coloration.
5. Formica Group advises against small text or use of reverse text.
    a. For 40mm, font should be 8 point or larger (this recommendation could vary de pending upon font type chosen)
    b. We do not recommend text on 25mm icon
6. Icon art should be submitted in .EPS or .AI.
7. Formica Group will provide an opportunity for customer to review and approve a lab sized version of the icon. Customer may request changes two times.
8. Formica Group reserves the right to adjust artwork based on manufacturing requirements.
9. Only one custom icon per Intentek™ Laminate sheet. Must order >99 Charging Zones per icon design.
10. When ordering, each custom icon made will be assessed a flat fee of $150. Fee must be included on purchase order.

K. How do I start an Intentek™ Wireless Charging Surface project

Go to https://www.formica.com/en-us/campaigns/intentek/getting-started

Furniture CAD Design is Complete:

1. Designer can review design guidelines on our website that provide detailed information on how to add Intentek™ Technology into the furniture design.
2. Reference the Intentek™ Wireless Charging Surfaces “tool-kit” on formica.com for example tables, BIM objects, and CAD objects.
3. Contact Formica Group for additional guidance or to start the order process.

Furniture Design has not yet been determined:

1. Formica Group does not offer furniture design services. For assistance:
    • Intentek™ Fabricator Partners can be contacted for assistance turning furniture needs into a shop/construction drawing.
    • Customer can also choose from several pre-designed https://www.formica.com/en-us/campaigns/intentek/getting-started selections and purchase directly from Intentek™ Fabricator Partners. Options on table shape, base and edge will vary by Fabrication Partner.
2. Contact Formica Group for additional guidance.

L. What is the minimum order quantity

Minimum order quantity is 1 sheet.

M. What is the manufacturing lead time

Formica Group estimates 4 – 6 weeks from purchase order receipt from Fabricator Partner to shipment to Fabricator Partner.

N. What is the average fabricator lead time

Fabricator lead times vary. Once an order has been placed, fabricator should be able to share lead times with their customer.

O. How would a designer specify this

A full 3 Part Specification is available on formica.com. https://www.formica.com/en-us/-/media/formica/north-america/document-library/technical-briefs/intentek-3-part-spec.pdf?rev=5a5fa38f386a44a2b3c2789de07ea091

How to Specify:

- Color number:
- Grade: TK
- Finish: 58
- # of charging zones:

P. Do you have any recommendations for the number of zones on a given table

This is based on the size/design of the furniture and the preference of the customer. The electronics module is 7” x 8” and must be kept 1” apart. Furniture Designers / Fabricators are responsible for the design, engineering or structural integrity of the fabricated piece.

Refer to the website for example table configurations.

Q. Can a table with the Intentek™ System also have USB ports or outlets

The furniture design may incorporate grommet holes for media cords or other outlets. The hole would be considered an obstruction which cannot touch the Electronics Module.

R. Can the Intentek™ System be part of an inlay in the table

Yes. However, part of the major appeal of Intentek™ Wireless Charging Surfaces is the seamlessness of the surface.

VI. Fabrication

A. How easy is the fabrication process

The fabrication process is unique versus standard laminate layups. There is a written Technical and Fabrication Guide. Only trained Fabricator Partners can buy components for and make Intentek™ Wireless Charging Surfaces.

B. Will Formica Group provide in-person fabrication support or training

Yes, as needed.

C. What is the tolerance in terms of aligning the coils with the electronics module

+/- 2mm or 1/8". Because of this tolerance level, Formica Group requires that the cavity be cut by a CNC machine versus a router or jig.

D. Will adhesive harm any part of the laminate or electronics

Fabricators should follow the Technical and Fabrication Guide for best practices. Adhesive should not come in contact with the 'contact pads' (found on the underside of the laminate) or the electronics system.

E. What type of backer is being used

The special backer is provided as part of the package from Formica Group. It is 2.3mm.

F. How is the back of the laminate decor sheet different from standard HPL

The back of the laminate is made with parchment. It cannot be sanded during fabrication.
The parchment does not change the adhesive process.

Further, you can see silver circles (called contact pads) that are on the bottom side of the laminate sheet. This is the location where the fabricator will connect the electronics module.

G. Why is the cavity for the electronics module cut into a strange pattern

The single direction pattern was intentional to help fabricators insert the electronics in the right direction.

H. What types of edging is recommended

Edge banding or self-applied/straight edge are acceptable edging options. This product cannot be post-formed. Other decorative edges may be possible, but the thickness of laminate and backer must be taken into consideration when doing edge design.

I. How does the thickness of the laminate & backer affect edging

The thickness will be greater than typical applications. The fabricator should use the edging that corresponds to the total thickness of the table.

We recommend that the fabricator use 12 GR for self-applied/straight edge.

J. Is a radius table/counter shape possible

Radius, circular, or oval shaped furniture is possible.

K. How easy is Intentek™ Wireless Charging Surface to cut

Intentek™ Laminate thickness is similar to thinner grades of Compact. Intentek™ Wireless Charging Fabricator Partners use a CNC machine to cut Intentek™ Laminate and Backers.

L. Can a hot or cold press be used to make a top

Yes, see Technical and Fabrication Guide for further detail.

M. What adhesive is recommended

PVA, PUR and Contact adhesives are recommended based on the chosen fabrication method.

N. What substrate is recommended

- Medium Density Fiberboard (MDF)
- Particleboard
- Hardwood Faced Veneer Core Plywood, also known as Grade A Faced Plywood

O. What is the minimum thickness the substrate needs to be

=/> 3/4” (19.1mm)

P. Can the electronics be completely flush to the bottom of the table

The system is designed for use with ¾" (19.1mm) substrate. In this case, the back cover of the Electronics Module will sit on the laminate backer. For substrates thicker than ¾" (19.1mm) the back cover is recessed.

Q. How do you hide the power cord on the bottom of the table

For the wire: A CNC will be used to cut channels for the wiring. Once the wire is installed, sheathing can be used to hide the wires. Formica Group requires that wires are covered.

For power adapter: It is possible to hide or partially hide the adapter by cutting a deeper channel into the top. A cradle can also hide the power adapter.

Formica Group has partnered with a third party provider, Becker, for purchase of cradles. To order email sales@beckerelectronicsinc.com or call 631-619-9100. To order sheathing, consider this 15/16" peel & stick edge band
https://www.fastcap.com/product/fastedge-peel-and-stick-edgebanding

R. If you cover the power cord on the bottom of the table, will that add to complexity of making repairs to the electronics

No rewiring is needed to replace the electronics module.

S. How are several electronics modules wired together? What type of wire is used

20 AWG or thicker depending on Standards requested by customer or required by region. Solid core is required.

T. What happens if the unit is damaged during installation

If fabricator cuts into the silver coil array on the back of the laminate, the sheet of laminate will need to be replaced.

If electronics module is damaged, it will need to be replaced.

VII. Care and Warranty

A. How should customers care for their Intentek™ Wireless Charging Surfaces After Installation

- See Intentek™ Technical and Installation Guide for additional instruction.
- Do not unscrew the electronics module housing without professional support. If internal parts are ever exposed, avoid contact with sharp objects and moisture.
- May not be housed outside of recommended temperate range.
- May not be stored outdoors.
- At all times, keep electronics module and AC adapter away from liquids.
- Do not place foreign or sharp objects in the electronics module or blower inlet / outlet.
- Follow all cleaning instructions for decorative surface. Do not attempt to clean inside of electronics module.

B. Will grease or liquid harm Intentek™ Wireless Charging Surfaces

The surface has the same durability and water/grease resistance as normal High Pressure laminate. Note that grease or liquid can harm competitive puck or pad systems.

C. Can liquid splash up and damage the bottom of the electronics module

It is possible. Liquid could enter into the blower inlet or outlet. As with any electronics, it should be kept dry.

D. Will a phone still charge if the surface is wet

Water will not harm a High Pressure Laminate surface. However, Formica Group would not recommend placing a cell phone on top of water.

E. What is the warranty

Warranty will be 1 year. See website for additinal information.
https://www.formica.com/en-us/-/media/formica/north-america/document-library/warranty/intentek-wireless-charging-surface-warranty.pdf?rev=37dcb4c400594f1a9ff355f4cabb61e2

F. How do you replace an electronics module that has malfunctioned

The Intentek™ Electronics Module can be removed and replaced.

- A Formica Group agent will make in-market assessments and repairs as needed under warranty).
- If not under warranty, the Electronics Module can be purchased separately and replaced.

Customers with issues should call 1-800-FORMICA™ and speak with a customer service rep.

G. How can the system be tested to confirm operation

Upon initial installation, there is an installation and QC procedure for the Fabricator Partner. Once installed, customer can confirm operation by placing a Qi Certified device onto the charging zone.

VIII. Safety & Certifications

A. Should I be concerned with any radio frequency emissions from the electronics module

Since Intentek™ Wireless Charging Surfaces are Qi Certified and have passed US, https://www.formica.com/en-us/-/media/formica/north-america/document-library/certifications/intentek-fcc-compliance-statement.pdf?rev=d5349411c5be4761954af1021899d4e8 EU https://www.formica.com/en-us/-/media/formica/north-america/document-library/certifications/intentek-emc-directive-2014-53-eu.pdf?rev=eca3b70439014a0bb4166656ac4e5382 and China regulatory and safety standards, one does not need to be concerned with radio frequency emissions.

B. What is the maximum heat output

The Qi Certification Standard limits the maximum temperature rise of the laminate surface less than 12C or +22 F above ambient (Ambient temperature is the temperature of the environment).

C. Do I have to worry that this could catch on fire

Intentek™ Wireless Charging components are Qi Certified, ETL and TÜV Rheinland Group Listed for testing to UL Standards. The system has passed US, EU and China regulatory and safety tests. The fabricator and installer must follow National Electric Code and regional safety requirements.

D. Can the charging zones be near a heated source (which could include food warmer)

The limitation is with the laminate rather than the electronics. Prolonged exposure to temperatures of 140 degrees F (60C) or higher may cause the laminate to separate from the core material. Intentek™ Laminate surfacing material can withstand heat up to 275 degrees F (135C) for short periods of time.

E. Will this harm a phone's battery

No, wireless charging does not harm a phone's battery. To the contrary, it is recommended to use partial charges and discharges to prolong the life of a Lithium Ion battery. Therefore, trickle charging the battery throughout the day is a good thing.

F. Can this interfere with hospital equipment

Intentek™ Wireless Charging Surfaces would need to go through the same testing as other electrical equipment used in the "hospital environment." The tests conducted on Intentek™ System do not specifically cover for special needs in a hospital environment.

G. Can this damage credit cards

It should not harm the magnetic strip or "chip" because Foreign Object Detection (FOD) will not allow the transmitter to turn on while these objects are on the surface.

H. What can be done to mount this unit for theft protection? Can any piece be stolen

Electronics Module could theoretically be unscrewed & removed. The AC adapter could also be removed.

A third party partner, Becker, will have a cradle available to hold the power adapter, which will increase the security of the AC adapter cord. To order email sales@beckerelectronicsinc.com or call 631-619-9100.

Security screws, with measurement of 4 mm diameter x 10 mm long, can be purchased by the Fabricator upon customer request such as this: https://www.brycefastener.com/?keyword=tamper%20proof%20bolts&gclid=Cj0KCQjwp5_qBRDBARIsANxdcilyviURoGYQ_X0ugtIsxHDns9Ct6Vr9vuQW3fJ1lKS7QXNwbImg5UkaAq4mEALw_wcB

I. Can a finger get stuck in the blower

The blower has a failsafe design. If a finger, or any object, is placed in the blower port it will stop immediately. Once the object is removed, the blower will begin to work again.

J. If I place something metal on the surface will it get hot

The Intentek™ Technology is Qi Certified. In order to be Qi Certified, it must include Foreign Object Detection (FOD). This feature insures that if there is any metal in the path of wireless charging, the device will not turn on or if it is already on, it will turn off.

K. Does the Intentek™ System affect the positive pressure in my establishment

The flow rate on the blower is very minimal (~ 2.0 cfm). Therefore, there is no measurable effect on the overall macro-environment where it is used.

L. Is there any security risk around sharing of information

No, Intentek™ Wireless Charging Surfaces do not collect or store any data. Because of this, our customers should not have information-related security concerns.
Qi Certification requires that no personal information is exchanged between the receiver and the transmitter.

M. Can I hardwire Intentek™ Electronics Module permanently into the electrical system (vs. using a plug)

Formica Group does not recommend hardwiring. Local safety codes need to be followed.

N. Is the Intentek™ System UL Approved

UL 60950
https://www.formica.com/en-us/-/media/formica/north-america/document-library/certifications/intentek-us-ul-and-can-csa-certification.pdf?rev=a6fc222ed1bc4e708d2a1ca72686762b
The AC adapter has a TUV Rheinland® certificate for testing to the UL 60950-1 standard. TUV Listed mark will be on the AC adapter. UL 60950-1 is part of the Standard that addresses “information technology equipment – safety – part 1: general requirements.” This standard addresses safety associated with a power adapter.

UL 2738
https://www.formica.com/en-us/-/media/formica/north-america/document-library/certifications/intentek-ul-2738-authorization.pdf?rev=4f0ce026e791448faa52382498d7b9f1
The Electronics Module has been ETL Listed for testing to the UL2738. An ETL Listed mark will be found on the Electronics Module. UL 2738 is Standard for Induction Power Transmitters and Receivers for use with Low Energy Products.

- UL develops the testing standards and tests to them. © Intertek Group laboratory and TÜV Rheinland offer independant lab testing that tests to UL Standards.

Conclusion

Formica Group only sells componentry to make Intentek™ Wireless Charging tables/counters. It is the responsibility of the fabricator and installer to confirm all safety requirements for the building type and region are followed.

UL Standards are not a law, though some customers, regions and building types may place higher importance on these standards.

O. What safety information should customer take into consideration

See Technical and Installation Guide for additional safety tips associated with fabrication and installation. The below are safety tips for use after top has been assembled.

- For indoor use only.
- Do not overload electrical outlets.
- AC Adapter must be plugged into a compatible mains supply to operate.
- Intentek™ Electronics AC Adapter or equivalent must be used.
- Never use the AC Adapter if damaged in any way.
- When using the AC Adapter or extension cord, confirm safety precautions have been made so there are no tripping hazards.
- Keep any wiring used to connect Electronics Modules covered.

IX. Marketing & Sales

A. Can I talk to one of your existing users to understand their experience

While we do not give out customer contact information, there are case studies https://www.formica.com/en-us/campaigns/intentek/gallery of real applications on our website.

B. Who are your current customers

While we do not give out customer contact information, there are case studies https://www.formica.com/en-us/campaigns/intentek/gallery of real applications on our website.

C. Do you have a brochure that I can read and circulate Yes

D. Can I buy it through my distributor or do I buy it direct

The components to make Intentek™ Wireless Charging Surfaces will be sold directly through Formica Group to Intentek™ Wireless Charging Surfaces Fabricator Partners.

X. Electrical Information

A. What certifications are important for electronics products

FCC part 18: This regulates industrial, scientific, and medical equipment (ISM) that emits electromagnetic energy on frequencies within the radio frequency spectrum in order to prevent harmful interference to authorized radio communication services.
For more information: https://www.fcc.gov/general/radio-frequency-safety-0

RoHS Compliant: EU legislation restricting the use of hazardous substances in electrical and electronic equipment (EEE) and promoting the collection and recycling of such equipment. The RoHS directive aims to restrict certain dangerous substances commonly used in electronic and electronic equipment. Any RoHS compliant component is tested for the presence of Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent chromium (Hex-Cr), Polybrominated biphenyls (PBB), and Polybrominated diphenyl ethers (PBDE). For more information: https://ec.europa.eu/environment/waste/rohs_eee/index_en.htm

UL: One of the oldest testing agencies in the country and provides certification on the safety of products, focusing on electric shock, energy related hazards, fire hazards, heat related hazards, mechanical hazards, radiation and chemical hazards. For more information: https://ulstandards.ul.com/

- TÜV Rheinland Listed for UL60950-1: Standard is applicable to to mains-powered or battery-powered information technology equipment.
- ETL Listed for UL2738: Standard for Induction Power Transmitters and Receivers for use with Low Energy Products

B. What is the AC/DC converter electrical input and output

Input: 100-240VAC, 50/60Hz (Max current draw is 1.8 amps)
Output: 12v DC @ 5.0A

C. How much energy is used if this is on all of the time

The maximum power consumed by the electronics is approximately 10W. Therefore, if electricity is assumed to be $0.15/kWh and the unit is drawing maximum power continuously, it will cost about 3.6 cents per day.

The Intentek™ System will draw less than 160 mA when in idle mode.

D. What is a watt and why is it important

To explain this in a way that's easy to understand, you can compare watts to miles-per-hour. Power is a measure of the rate at which energy flows, and in electrical systems it is measured in watts (W). Watts are basically the miles-per-hour measurement of the electrical world--they tell you how fast the electrons are speeding down the highway. One watt is equivalent to electricity flowing at a rate of one joule per second in the metric system, which is also equivalent to 3.4 BTUs per hour.

A 60-watt lightbulb will consume electricity at a rate of 60 watts. A medium-sized car might consume 100,000 watts. A small gasoline generator puts out 2,000 watts.

Source: https://www.buildinggreen.com/news-article/what-watt-anyway-understanding-energy-and-power-metrics

E. What power requirements are used throughout the world and will the Intentek™ System work with them

Intentek™ System will work with voltage between 100 - 240 Volts AC.

North America will sell plug type B. Our electronics partner can source other plug types based on demand. Below is a list of power requirements and plug types for some of our Formica Group locations.

United States
- The standard voltage is 110V-120V and the frequency is 60Hz.
- USA power sockets used are types A / B.

Mexico
- The standard voltage is 127V and the frequency is 60Hz.
- Mexican power sockets used are types A / B.

Canada
- The standard voltage is 120V and the frequency is 60Hz.
- Canada power sockets used are type A and B.

China
- The standard voltage is 220V and the frequency is 50Hz.
- China power sockets used are types A / C / I.

UK
- The standard voltage is 230V and the frequency is 50Hz.
- United Kingdom power sockets used are type G.

Spain
- The standard voltage is 230V and the frequency is 50Hz.
- Spanish power sockets used are type F.

Germany
- The standard voltage is 230V and the frequency is 50Hz.
- German power sockets are type F.