July 2019

# D326

# Resene SmartTouch

conductive coating

Resene SmartTouch conductive coating is a functional waterborne coating to be used with the Resene SmartTouch system.

Areas coated in Resene SmartTouch conductive coating become touch-responsive when connected to Resene SmartTouch electronic controllers.

## interior

## Typical uses

Operating lights in:

- Living/dining
- Entranceways
- Bedrooms

*Please ensure the current Data Sheet and Safety Data Sheet are consulted prior to specification or application of Resene products. View Data Sheets online at www.resene.com/datasheets. If in doubt contact Resene.*

## Physical properties

| | |
|---|---|
| **Vehicle type** | 100% acrylic |
| **Pigmentation** | Conductive pigment |
| **Solvent** | Water |
| **Finish** | Low sheen |
| **Colour** | Black |
| **Dry time (minimum)** | 45 minutes at 18°C |
| **Recoat time (minimum)** | 2 hours (with self, 12 hours before topcoats) |
| **Primer required** | Yes (on new surfaces). |
| **Theoretical coverage** | 12 sq. metres per litre |
| **Usual no. of coats** | 2 |
| **Abrasion resistance** | Fair |
| **Chemical resistance** | Fair |
| **Heat resistance** | Thermoplastic |
| **Solvent resistance** | Low |
| **Durability** | Excellent when overcoated |
| **Thinning and clean up** | Water |
| **VOC(mixed)** | c. 67 grams per litre (see Resene VOC Summary) |

## Performance and limitations

### Performance

1. Turns most paintable surfaces into touch-responsive surfaces when used with the Resene SmartTouch controllers.
2. Easy application and cleanup.

### Limitations

1. Not recommended for use where the SmartTouch active area exceeds 2 $m^2$.
2. Not for use on metallic substrates even when the metal surface is coated/primed.
3. Do not paint over earthed metal parts or joinery.
4. Where small children will be using SmartTouch the recommended area should not exceed 1 $m^2$.
5. Not recommended for use on wall linings applied over steel reinforced concrete, steel firewalls and where steel framing is used.
6. Not recommended for use on walls containing cavity sliders.
7. MUST be overcoated with Resene SpaceCote, Lustacryl or finished with a decorative layer such as wallpaper.
8. Do not apply at temperatures below 10°C or when it is liable to drop below this during the drying period.
9. Must be used as a part of the Resene SmartTouch complete system.
10. Sensitivity decreases as overlaying material thickness increases (on standard controller settings).
11. The SmartTouch conductive coating must maintain a minimum clearance of 6mm from metal parts of electrical installations.

# **Resene SmartTouch** conductive coating

## Surface preparation

Previously unpainted surfaces must be prepared and primed with the appropriate substrate primer prior to application of Resene SmartTouch conductive coating.

## System

The Resene SmartTouch system requires

1. Application of Resene SmartTouch conductive coating to form an Active Area where touches will be sensed. Coating stripes to form the Active Area is recommended.
2. Attachment of a Smartlink connector (cable with attached metallised connector pad) to the Active Area. The cable on the Smartlink connector will be wired to the SmartTouch controller later.
3. An electrician holding a current practicing license to connect the controller to mains power.

Careful coating application is required near electrical installations e.g. wall lights to maintain safety of the system. Ensure gaps of at least 6mm exist between conductive coating and any metal parts that form part of an electrical installation or device. It is advisable to fully test the SmartTouch controller before overcoating with decorative layers.

## Application

1. Prepare and prime (new surfaces) or spot prime (existing painted surfaces).
2. Apply first coat of Resene SmartTouch conductive coating by brush, speed brush or synthetic fibre roller (Resene No.1 – two coats; Resene No.4 – three coats) to the areas where touch activation is required. Ensure edges of stripes are feathered to reduce texture in subsequent coats. Allow to dry.
3. Connect SmartTouch Smartlink to each active area.*
4. Apply second coat (and a third coat if using No.4 sleeve) of Resene SmartTouch conductive coating as in step 2. Allow to dry for at least 12 hours.
5. Test electrical resistance of dried coating and compare to the resistance specification table.
6. Overcoat with decorative layer – Resene recommends two coats of SpaceCote Low Sheen (this may be upgraded further with a final coat of Resene SpaceCote Low Sheen Clear), or Resene Lustacryl semi-gloss.

***** SmartTouch Smartlink may be installed at a later stage by an electrician (a small volume of Resene SmartTouch conductive coating must be available for this). Configuration and tuning of the controller can be carried out with a wet connection providing the larger Active Area is dry.

Contact Resene for:

- Other Smartlink installation options where an existing switch is unavailable.
- Additional instructions for coating where Resene SmartTouch conductive coating is to be applied in very narrow or confined spaces or where cracks in the substrate are present/may occur.

## Detailed installation procedures

### Connecting Smartlink behind a switchplate – use of the Application Templates

Watching the installation video is recommended before starting installation

The following steps **must** be followed for installation behind switchplates to provide required electrical clearances between potentially live parts and the SmartTouch System. See Figures 1 and 2 showing correct use of Application Templates for PDL 600 and Iconic series switchplates. For the PDL 600 series, confirm the appropriate positioning of the Smartlink pad as some switchplates only have sufficient space on one side of the switchplate due to layout of componentry on the reverse face). For new installations where the final switchplate is not known, follow the instructions for the PDL Iconic series installation.

Other switches of plastic construction may be suitable for use with the Application Templates, check the position of available gaps on the rear switchplate face. Where the switchplate does not have gaps aligned with the Application Template ensure the position of Smartlink and conductive coating is >6 mm from screws or other fastenings and that no conductive coating is allowed to flow into wall penetrations. Trimming of support ribs may be required in some switchplates. Switchplates with exposed metal parts on the rear face (except the Iconic range) are not suitable for locating Smartlink or conductive coating using the standard templates - an alternative installation position is required.



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**PDL 600 Series**

① Screw the Application Template to the flush box using switchplate screws. Continue to step ② or **for best results** draw a pencil line around the template and after removing the template, use masking tape to mask the inside (flushbox side) of all pencil lines.

② Apply the first coat of Resene SmartTouch conductive coating up to the edges of the Application Template or masking tape. Ensure coating does not bleed under the template or masking. Only apply coating in the gap(s) that will be used to mount a Smartlink connector. Wait at least 2 hours for the coating to dry. If the template is being used for coating application remove it while drying and then reattach for step ③.

③ Apply Resene SmartTouch conductive coating to the smooth side of the metallic pad on the Smartlink cable, press the coated side onto the dry SmartTouch conductive coating surface in the template gaps provided (see Figure 1). Secure with supplied pins – 2 per connector (plasterboard and timber only – support cable while drying for other substrates).

④ Apply a second coat of Resene SmartTouch conductive coating up to the edges of the Application Template/masking and over the Smartlink connector pad. Ensure coating does not cover any surface below the template or masking.

⑤ Remove the Application Template (if used) and allow to dry.

⑥ Measure coating electrical resistance after a minimum of 12 hours (see resistance specification table).

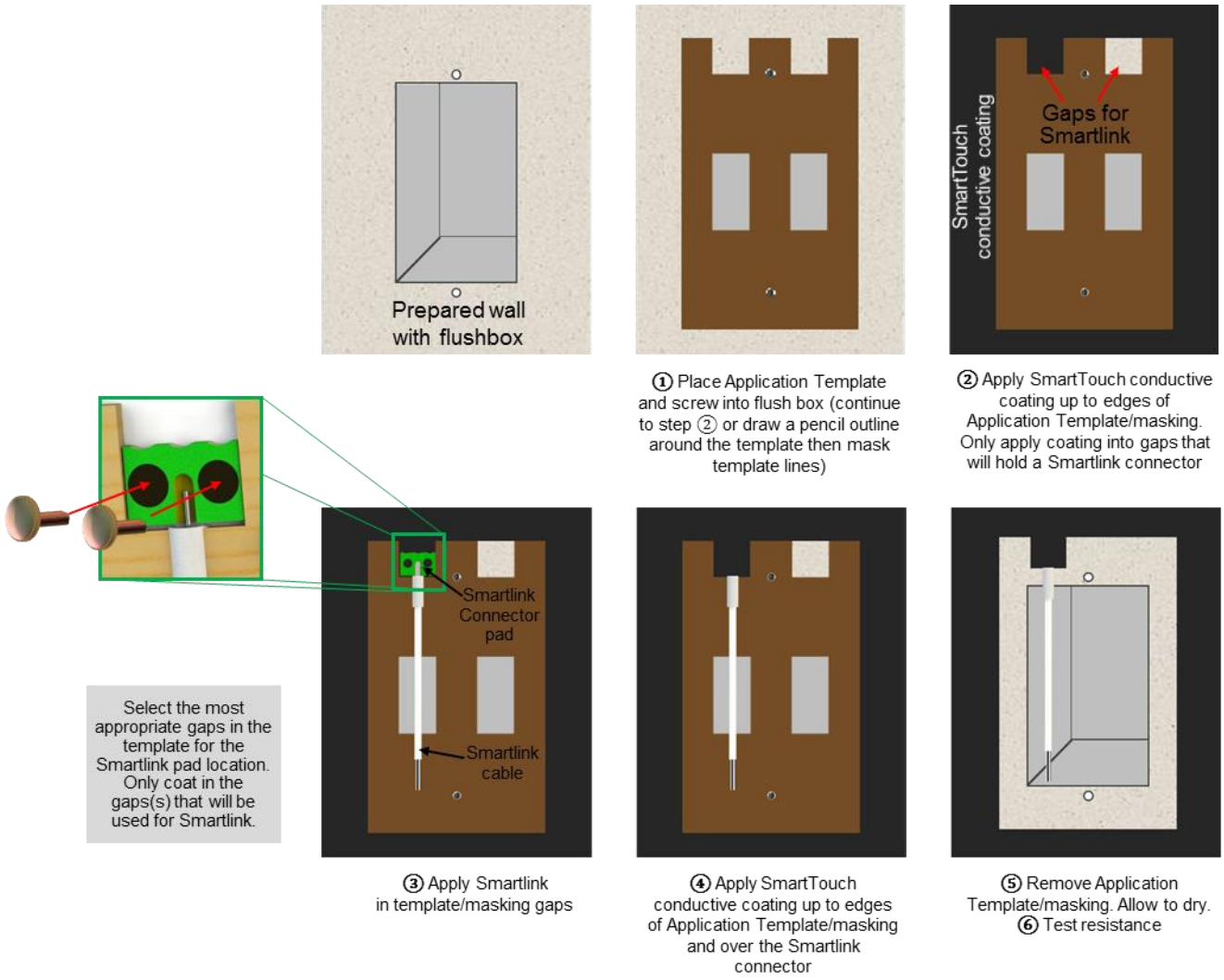


***Figure 1. Application of Resene SmartTouch conductive coating using the PDL 600 Series Application Template***

**PDL Iconic Series**



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① Screw the Application Template to the flush box using switchplate screws. Continue to step ② or **for best results** draw a pencil line around the template and after removing the template, use masking tape to mask the inside (flushbox side) of all pencil lines.

② Apply the first coat of Resene SmartTouch conductive coating up to the edges of the Application Template or masking tape. Ensure coating does not bleed under the template or masking. Remove the template, if used, while the coating is still wet. Only apply coating in the gap(s) that will be used to mount a Smartlink connector. Wait at least 2 hours for the coating to dry. Apply a second coat of SmartTouch conductive coating (reattach the template beforehand if this is being used instead of masking tape).

③ Cut out a channel the same width as the Smartlink gap and about 4 mm in depth.

④ Seal the exposed surfaces of the channel (Resene Sureseal or Resene Broadwall Wallboard Sealer) then coat all sides of the channel with SmartTouch conductive coating and overlap about 20 mm into the Active Area coated previously. If the template is being used without masking tape, ensure the coating stays in line with the channel edges. Feather the edges with a brush and allow to dry. Apply a second coat of SmartTouch conductive coating in the channel, press the Smartlink cable into the wet coating and secure with supplied pins – 2 per connector (plasterboard and timber only – support cable while drying for other substrates).

⑤ Apply Resene SmartTouch conductive coating over the Smartlink connector pad and overlap about 20 mm into the Active Area coated previously. If the template is being used without masking tape, ensure the coating stays in line with the channel edges. Feather the edges with a brush and allow to dry.

⑥ Measure coating electrical resistance after a minimum of 12 hours (see resistance specification table).

⑦ Fill the channel with plaster. Once dry gently sand to smooth the edges taking care not to damage the conductive coating.

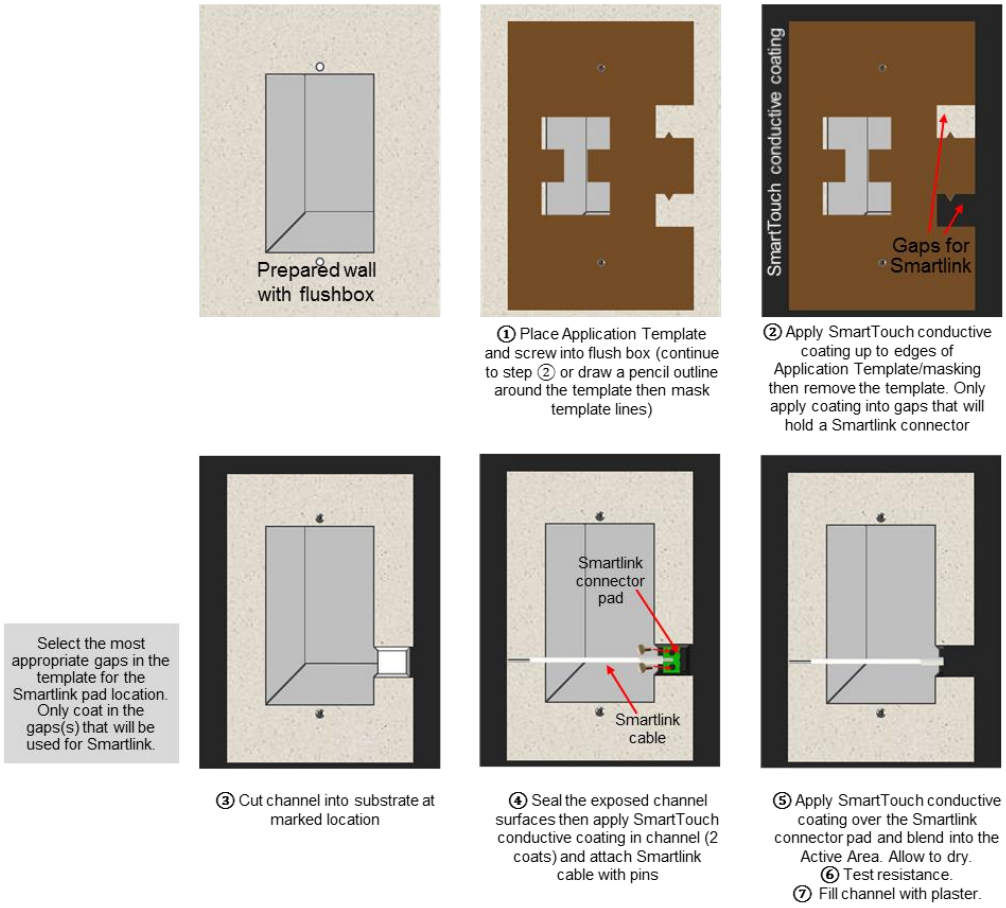


***Figure 2. Application of Resene SmartTouch conductive coating using the Schneider Electric Iconic Series Application Template***

# Design rules for application of Resene SmartTouch conductive coating

The maximum recommended area for SmartTouch conductive coating application is 2 square metres. Larger areas are possible under certain conditions, particularly where there are concrete floors or where Touch Commands use press actions rather than tap actions. Contact Resene for further details about larger areas.

**Electrical clearances**

As Resene SmartTouch conductive coating is a conductive surface, minimum clearances and creepage distances from electrical connections and metal parts/screws forming part of electrical installations must be maintained for safety reasons. Distances between screws or live parts and SmartTouch conductive coating and/or the SmartTouch Smartlink connector pad must be a minimum of 6mm. Do not apply SmartTouch conductive coating directly beneath the location of electrical fixings e.g. lights, heat pumps or switchplates with metal construction.

When installing Smartlink behind switchplates, the use of an Application Template is required to ensure appropriate distances from live parts or parts that may become live. Not all switchplates are compatible with the Application Template - see Detailed Installation Procedures for compatible switchplates.

**Designing the Active Area**

Resene SmartTouch conductive coating can be applied in many shapes and designs to suit a particular installation. Maximum performance is achieved on smaller areas. Typically a wall will be coated in the form of a stripe to form the Active Area.

Stripes may be used to connect a larger Active Area to the Smartlink cable or to pass around wall penetrations such as windows. Ensure a minimum of 400mm width is maintained when painting a stripe. For very small areas, less than 0.5 $m^2$, the minimum width is reduced to 100mm.

Where small children will use the SmartTouch system, reduce the Active Area to less than 1 square metre for reliable operation.

When coating over joints, it is crucial to maintain a continuous layer of conductive coating. Any complete breaks will render areas disconnected from the Smartlink connection point inoperable. Small cracks and holes typically do not affect operation, larger cracks will reduce sensitivity.

Coating around internal or external corners is possible.

Do not coat over metallic substrates or over substrates with earthed metal in close proximity e.g. steel-reinforced concrete or on linings covering earthed metal framing, steel-reinforced concrete or metal firewalls. Take care to avoid coating being applied on to metal joinery or earthed metal fixings used to hang linings. If earthed the system will not function.

See the SmartTouch conductive coating Resistance Specification table for guidance on testing the Active Area.

**Measuring Electrical Resistance of Resene SmartTouch conductive coating**

With a multimeter set to resistance mode:

- Place probes 500mm apart on the dried Resene SmartTouch conductive coating surface. If using pointed probes place the angled edge firmly against the coating, not the sharp point. Measure resistance in overlapping sections across the whole Active Area. Ensure the SmartTouch Smartlink connector is a terminal in at least one measurement.
- Compare the measured resistance with the Resistance Specification table. For proper operation, electrical resistance should be less than or equal to the specification which is based on the width of the section being measured.
- Additional layers of Resene SmartTouch conductive coating can be applied to achieve specification if required.
- Extra dry time may be needed under some environmental conditions to achieve resistance specification. On small areas, gentle heating (≤80°C – check substrate suitability) may be used to reduce electrical resistance.

**Resene SmartTouch conductive coating - Electrical Resistance Specification**

| Minimum Resene SmartTouch conductive coating width | Maximum Point-to-Point Resistance (500mm) | Suitable distance from SmartTouch Smartlink |
|---|---|---|
| 100mm | 2.5 kΩ | <1 m |
| 400mm | 1.8 kΩ | >1 m |



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## Precautions

1. Ensure minimum clearances are obtained when coating near electrical installations or live wiring.
2. Do not coat over earthed metals including metal systems for hanging/fixing wall linings.
3. Do not coat areas which will be covered by electrical installations or potentially live parts e.g. wall lights. Heat pumps
4. When connecting two SmartTouch conductive coating surfaces to the SmartTouch controller, ensure there is no overlap or connection between the coated areas to maintain the individual functionality of each area.
5. Ensure the SmartTouch Smartlink connector is securely attached to the SmartTouch conductive coating surface for proper operation.
6. For previously unpainted surfaces, ensure the correct primer and/or sealer is used.