

# BATHROOM SAFETY IN THE COVID-19 ERA

Specifying Touchless Technology for Health,  
Sustainability and Aesthetics



## Introduction

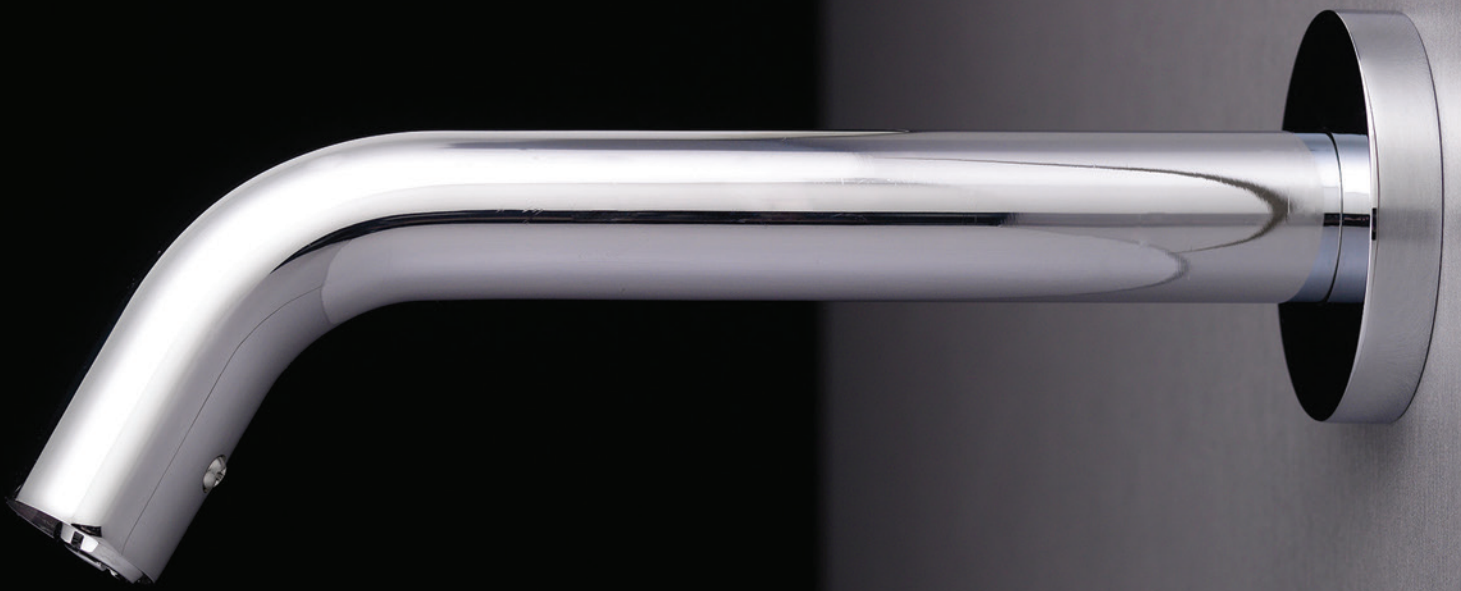
The COVID-19 pandemic has transformed how we approach the design of the built environment forever. Whereas aesthetics and performance were once the top design priorities, now minimising the risk of virus transmission has taken centre stage. De-densification, increased ventilation, social distancing measures and surface hygiene are all being considered in hopes of reducing the spread of COVID-19 via airborne transmission and contaminated surfaces.

Health experts, designers and architects are highlighting how the COVID-19 pandemic has exposed fundamental flaws in bathroom design. Bathrooms and washrooms are among the most frequented conveniences in a building with many shared touchpoints, such as doors, tap handles and soap dispensing buttons, that may serve as sites for infectious disease. Calls are growing for design innovations that ensure all future builds comply with infection control measures.

One of the suggested innovations is the adoption of sensor taps that enable users to dispense water and complete handwashing procedures without human contact. Touchless technology is not limited to tapware – sensor-operated soap dispensers and hand dryers can also be specified to create contactless bathrooms that virtually eliminate the risk of surface-to-hand transmission of viruses like SARS-CoV-2 (the virus that causes the COVID-19 disease).

Proponents of touchless technology argue that they can improve health outcomes in the context of the current global health crisis. However, there are misconceptions when it comes to touchless technology that act as barriers to entry. In relation to sensor taps, it is commonly thought that there are no solutions on the market that are both economical and sustainable, that sensor taps are unreliable, that there is a limited range of designs compatible with architectural finishes, and that sensor technology is difficult to install when compared to traditional tapware.

In this whitepaper, we take a closer look at why sensor taps are an essential safety measure in the COVID-19 era and dispel some common misconceptions about cost, reliability and installation. Against this backdrop, we also discuss the key design considerations when specifying sensor taps for your next project.



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# The Argument for Sensor Taps

## Public Health, Confidence and Convenience

As the global pandemic continues, hygiene-improving measures in the built environment are necessary investments to help support economic recovery. In the past, such measures may have been vulnerable to cost cutting at the design phase, but now sensor taps are becoming an essential feature of new builds to minimise the risk of spreading deadly viruses.

It is well established that viruses can survive for long period of time on inanimate objects. In its own studies, the CSIRO recovered infectious SARS-CoV-2 material from smooth, non-porous surfaces after 28 days in cool temperature conditions (20°C).<sup>1</sup> In warmer conditions (30°C), infectious virus was recovered after seven days.<sup>2</sup> Such findings underscore the public health advice that SARS-CoV-2 can be transmitted by simply touching a contaminated surface.

Health concerns regarding bathrooms are well-founded given the number of people using the space every day. Each user of a bathroom or washroom will touch several surfaces on every visit thus increasing the risk of viral transmission. In studies following chains of infection in bathroom settings, virus was found on 50% of bathroom door handles and 19% of taps.<sup>3</sup> In the same study, bacteria was detected on 14% of door handles and 9% of taps.<sup>4</sup>

Research data further supports the potential of viral transmission via touching surfaces in public toilets.<sup>5</sup> Factors that contribute to the risk in such settings include the presence of virus in fecal matter that can be spread by flushing the toilet,<sup>6</sup> inconsistent cleaning practices and ineffective handwashing.


The preponderance of high-touch surfaces in public bathrooms presents a significant challenge with the World Health Organization (WHO) recommending the use of a paper towel to turn off a tap to prevent further contamination.<sup>7</sup>

Sensor taps provides an effective and functional solution for eliminating contact with one of the most highly-used elements in a bathroom. Before the pandemic, sensor taps were primarily used for settings where hygiene is paramount, such as hospitals and aged-care facilities. Now, specifying sensor taps is recommended for all types of builds. With a range of options on the market, there are sensor taps suitable for any facility, workplace or private household to keep the transmission of disease to a minimum.

While preventing infection is the primary reason for specifying sensor taps in the COVID-19 era, they are several other related benefits. The use of hygiene measures such as sensor taps can instill greater confidence in users of the safety of public buildings. The perception of safety is important in getting employees back into the office and encouraging people to use public facilities, the net effect of which will help boost the economy once public spaces fully reopen.

Sensor taps also offer the convenience of automation and accessibility. Sensor taps are easy to operate as they function by sensing the presence of hands. This means they can be used by anyone, including children, the elderly and users with limited mobility. Automation also eliminates moving parts such as levers and knobs that are prone to wear and tear through heavy use.





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## Common Misconceptions and Pitfalls

### “Sensor taps are too expensive.”

Sensor taps imply higher initial costs than traditional tapware. While the price range is wide, advancements in technology have made sensor taps a feasible option in most builds.

In any case, sensor taps compare favourably to traditional tapware when you consider water consumption costs. A running tap wastes over six litres per minute.<sup>8</sup> In public areas, users are often not careful with the amount of water they use, resulting in high water wastage. With a sensor tap, there is no water running when a user is soaping their hands. The sensors controlling the tap's on/off feature ensure only the required amount of water is dispensed during handwashing.

### “Sensor taps always malfunction.”

While early iterations of sensor technology may have been less reliable, the latest generation of sensor taps are safe, easy to use and of a high quality. Current generation sensor taps benefit from technological advancements in manufacturing and design, ensuring users will not face the problem of taps turning on and off randomly provided the system is installed properly. Choosing a reputable manufacturer with extensive warranties and support can further put owners at ease.

### “Sensor taps don't save water.”

Some sensor taps may run too long or too short, wasting water from over-dispensing or multiple operations. Some taps may also be triggered by false signals. This commonly occurs when the sensor is located on the wall, which may be accidentally activated by light reflected from hi-viz jackets or mirrors and polished surfaces. Leading solutions address this

issue by placing the sensor in the handwashing area in front of the spout, ensuring that the tap is activated only when hands or another physical object are directly in front of the sensor.

Other features to reduce water consumption include fixed water flows to avoid users spending a few seconds getting the water flow to the right level or turning the tap too high, and temperature control prior to the outlet to prevent users spending excess time getting the water to a comfortable temperature. The latter is achieved by connecting the tap to a thermostatic mixing valve (TMV) which carefully mixes hot and cold water to dispense tempered warm water.

### “Sensor taps are difficult to install.”

Owners, designers and architects may be hesitant to specify sensor taps due to a common misconception that they are more difficult to install than traditional tapware. However, in reality it is easy to find professionals that can install sensor taps effectively. Manufacturers provide ample installation support, and some offer pre-installation or back-of-wall kits as separate products.

In many cases, sensor taps are as easy or even easier to install than traditional single-lever mixers. They use the same plumbing infrastructure and washbasin configurations and there is no need for special adaptors. Sensor taps can be connected to mains or use battery power supply, which means that a power outlet is not required. If choosing a battery-powered solution, it is advisable to factor in the cost of how often you will need to change out the batteries.



## Choosing the Right Sensor Tap

### Features and Performance

The challenge for designers and architects is identifying a sensor tap that offers value for money and performance across the board. Some solutions are cheap but not sustainable, or sustainable but expensive, while others offer a limited range of finishes or have only basic features. It is important to ensure the unit meets the project's requirements for cost, performance, functionality, sustainability and safety. At the lower end, cheaper sensor taps may use inferior parts and not offer the same level of quality or support.

At a minimum, the design and placement of the sensor tap should enable reliable and convenient hands-free operation of the tap. To further minimise spread of virus and bacteria, you can combine sensor taps with other contactless bathroom products such as sensor-operated soap dispensers. Some manufacturers offer a range of different products in this category to make fitting out a bathroom or washroom easy and less time consuming.

### Sustainability

As noted above, features such as fixed water flow and temperature control are important factors in reducing water consumption. Nevertheless, specifiers should consider flow rate as a key indicator of a tap's sustainability. All tapware should be accredited under the WELS (Water Efficiency Labelling and Standards) scheme, with the water rating label displayed on the product. Across the industry, 5-star (maximum 6L/minute) or 6-star taps (less than 4L/minute) are considered the benchmark. Specifiers should opt for 6-star rated sensor taps wherever possible.

### Accessibility

Traditional tapware can be difficult to operate for users who cannot easily grab a normal tap, hence the preference for single-lever taps for disabled use. However, sensor taps are increasingly becoming standard in DDA (Disability Discrimination Act) environments as they enable completely hands-free operation. Sensor taps have the added advantage of protecting immunocompromised users in education, healthcare and aged-care settings from bacterial or viral infection.

Temperature control is another consideration in DDA applications. Taps must offer an effective way of ensuring water is dispensed at a safe handwashing temperature to protect vulnerable users. It is recommended that the sensor tap is connected to a TMV to dispense water at the required temperature.

### Aesthetics

The aesthetic choice of sensor taps should be in line with the style of the surrounding environment. Leading manufacturers offer a range of designs and architectural finishes that meet requirements for modern building design across all sectors.

When choosing a finish for your sensor tap, consider the durability of the finish especially for heavy-traffic applications. A popular option for bathroom fittings, chrome provides a stylish, modern finish, but it picks up light reflection easily, gets dirty and may be scratched by abrasive cleaners. Brushed or matte finishes may provide a lower maintenance option without compromising on aesthetics.

# Billi

## Touchless Technology for Modern Bathrooms

Originating in Australia, Billi has been at the forefront of the tapware and water systems industry for over 30 years. Boasting innovative sensor technology, Billi sensor taps and soap dispensers provide the ideal solution for modern, ultra-hygienic bathrooms, providing a combination of sustainability, ergonomics and design compatibility for a range of architectural applications.

Manufactured in Australia in state-of-the-art facilities, you can rely on Billi products for quality and performance. Billi's team of skilled technicians can help you install their innovative sensor water taps and soap dispensers for your next project.

### Hands-free Sensor Taps

Billi sensor taps feature a unique electronic sensor built into its spout which automatically detects hand movement in the hand washing zone and shuts off as soon as you move your hands away reducing water wastage. The sensor tap is ideal for use in many situations, from medical and aged care settings to schools, retail shops and commercial washrooms, and more.

### Features

- Contactless dispensing to maintain high hygiene standards.
- Available in bench mount, wall mount or straight wall mount designs.
- Easy to install, with options of mains or battery power supply.
- Available in a range of architectural finishes including Chrome, Matte Black, Brushed and Urban Brass.
- User friendly, ergonomically designed and conforms to current Australian Standards for ease of use by persons with a disability.
- WELS-rated 6 Stars for maximum water efficiency and sustainability.
- Back of wall install kits available to maintain project timelines and progress payment budgets.

### Hands-free Soap Dispensers

Offering a contactless handwashing experience, Billi's hands-free soap dispensers feature a 1000ml reservoir with the flexibility of mains or battery power supply. Ideal for a wide range of applications, the Billi soap dispenser features a unique electronic sensor built into the spout to automatically detect hand movement in the dispensing zone.

### Features

- Contactless dispensing to maintain high hygiene standards.
- Easy to install, with options of mains or battery power supply.
- Dispenses for a set time, min 0.5 seconds -> max 10 seconds. Custom settings available.
- User friendly and ergonomically designed.
- Suitable for use with liquid soap – non foaming.

For more information, visit the Billi Australia website at:

<https://www.billi.com.au>



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All information provided correct as of August 2021

**Billi**<sup>TM</sup>