



## Project

Smart parking meters.

## Application Characteristics

Smart parking is where technology, economics, and the customer experience converge to create more livable, sustainable cities.

A smart parking program is a critical component of the smart city framework. Smart technology has the power to maximize assets and accommodate responsible growth by increasing revenue, improving efficiency, and contributing to a more sustainable future.



Previous unattended payment systems used lighting systems that delivered flat, white light. These lighting systems did not effectively illuminate the user interface, making it difficult to read the display and lowering the quality of the user experience.

The smart parking meter required a better, brighter, and warmer light source to improve daytime visibility.

## Requirements

As the smart parking meter can be solar or AC powered, the illumination system needed to be low power. As the parking meters are often exposed to the elements, all components must be able to endure harsh outdoor environments.

In addition, the LED indicators need to provide a wide viewing angle to guarantee clear visibility of the entire display screen with no shadows or glare. Clear visibility ensures users are prompted appropriately for the next steps in the payment process, and can quickly identify and understand their parking status – paid versus out-of-time.



## Solution

Offering bright illumination through a clear lens with a wide viewing angle, the FLXR2CTP12 light pipe improves the visibility of the smart parking meeting display screen in daytime and nighttime.

With the FLXR2CTP12 light pipe, there is no mistaking whether the smart parking meter is on/off, or paid/unpaid.



Are you ready for next level illuminated components?

# Case Study

## FLXR Light Pipe

Smart parking meter designs do not typically have power in the panel/display. As a result, the low-power LEDs are placed on the printed circuit board (PCB). The FLXR2CTP12 light pipe provides an easy method for transmitting light from board-mounted LEDs to a front panel, offering ESD protection and a flexible design of the parking meter.



The flexible FLXR2CTP12 light pipe has a robust anodized aluminum body and clear lens for rugged, long-term performance in the harshest environments. The IP67-rated, NEMA 4 protected light pipe is resistant to shock, vibration, and extreme temperatures.

Featuring a low profile for protection against vandalism, the FLXR2CTP12 light pipe reduces maintenance and overall cost of ownership.



The FLXR2CTP12 light pipe is available in five different lens colors (red, green, clear, blue and amber), lengths up to 12.0", a clear or black anodized finish.

The light pipe fits into a 0.400" (10.1mm) hole with a panel thickness from 0.059" (1.5mm) to 0.320" (8.1mm).

## Results & Benefits

Most importantly, the FLXR2CTP12 light pipe improves visibility of the smart parking meter display for motorists, technicians, and collections staff.

Designed with the service technician in mind, the modular components can be easily removed, serviced, and replaced with no more than a screwdriver. Cities benefit from lower equipment upgrade costs, ease of maintenance, and reduced overall cost of ownership.



## Value-added Service

VCC's light pipes brings value when the user is able to make better decisions or have better control of the systems due to the illuminated control panel.

VCC's daylight visible light pipes can be found in any industry or commercial application where human-to-machine interface is needed.



Are you ready for next level illuminated components?