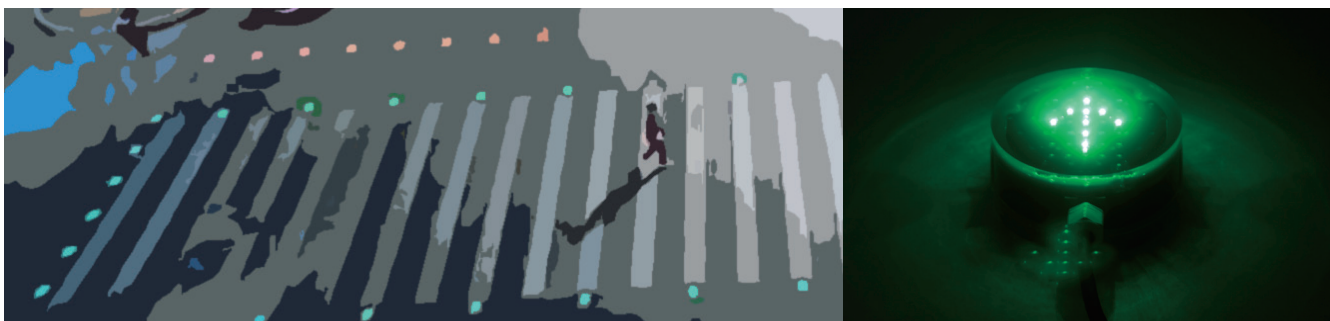


ClairSRS Wired

Wired-powered Active Smart Road Studs



ClairSRS Smart Road Stud is an intelligent, actively illuminated device embedded in the road surface, integrating sensors, communication modules, and light-emitting components. It can sense and transmit traffic condition data, providing real-time information to drivers or traffic management systems through light signals and flashing. These road studs enhance road visibility and safety, particularly in nighttime, adverse weather, or complex road conditions, helping to reduce traffic accidents and improve road efficiency.

ClairSRS Wired is a wired-powered active smart road stud equipped with a 5x6 matrix of ultra-bright LED lights. It can display various signals such as straight, stop, no entry, and left turn, and supports custom complex patterns. This smart road stud can be connected to signal control devices or video and radar detection systems, enabling applications such as dynamic road rights, tidal lanes, variable lanes, lane-sharing for left turns, and smart crosswalks. It integrates seamlessly with traffic management systems, enhancing road safety and management efficiency.

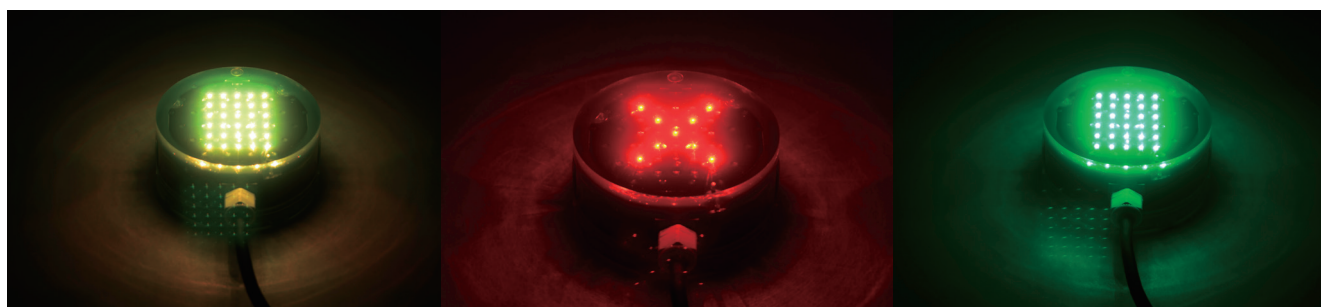
■ Key Features

- **Ultra-bright LED Beads:** The device is equipped with ultra-bright LED beads that actively emit light to enhance road visibility and driving safety in low visibility conditions at night. The LEDs also provide effective road guidance and information dissemination even during the day.
- **LED Display Effect:** Features a 5x6 matrix of LED beads capable of displaying signs such as straight, stop, and no entry. Custom shapes can also be accommodated.
- **Temperature Management:** Equipped with a built-in temperature sensor, the device automatically adjusts the current to prevent overheating. This helps maintain the stability of the LEDs, extends their lifespan, and ensures they consistently output high brightness in various environmental conditions.
- **Flush Ground Installation:** With a patented dual-stage light refraction design, the LED beads of the road stud do not need to protrude above the road surface while still achieving excellent long-distance visibility. The road stud remains flush with the ground, ensuring it does not interfere with snow plows or other road maintenance equipment.
- **Infrared Communication:** Can be equipped with an infrared communication module to detect specific vehicles with infrared transmitters, such as BRT or buses, enabling V2X applications like dynamic road rights.
- **Wide-Temperature and Pressure-Resistant Housing:** Made from reinforced PC material, the housing withstands operating temperatures from -45°C to 85°C and pressure up to 26.5 tons.
- **NFC Programming and Remote Firmware Upgrades:** Supports NFC programming for location configuration, device reboot, firmware upgrades, parameter adjustments, mode switching, and information retrieval.



Specification

	ClairSRS Wired
Product Description	A wired-powered smart road stud.
Power Supply	Wired powered. DC36V
Power Consumption (single stud)	≤6W (when displaying full-screen patterns with all three RGB colors fully lit).
LED Light Source	RGB three primary colors.
LED Luminous Intensity	Red: 12,000~15,000 mcd Green: 13,000~16,000 mcd Yellow: 8,000~10,000 mcd
LED Bead Arrangement	5x6 matrix
LED Bead Size	Diameter 8mm
Dimension	Diameter: 150mm Height: 72mm
Weight	1.68 kg
Enclosure Protection Rating	IP68
Enclosure Pressure Resistance	26.5 tons
Operating Temperature	-45°C to +85°C
Communication Interface	RS485
Infrared Communication	Optional, for applications with BRT and bus route coordination
Firmware Upgrade	Supports wireless upgrades
Additional Features	NFC functionality for location configuration, device reboot, firmware upgrade, parameter adjustment, mode switching, and information retrieval.



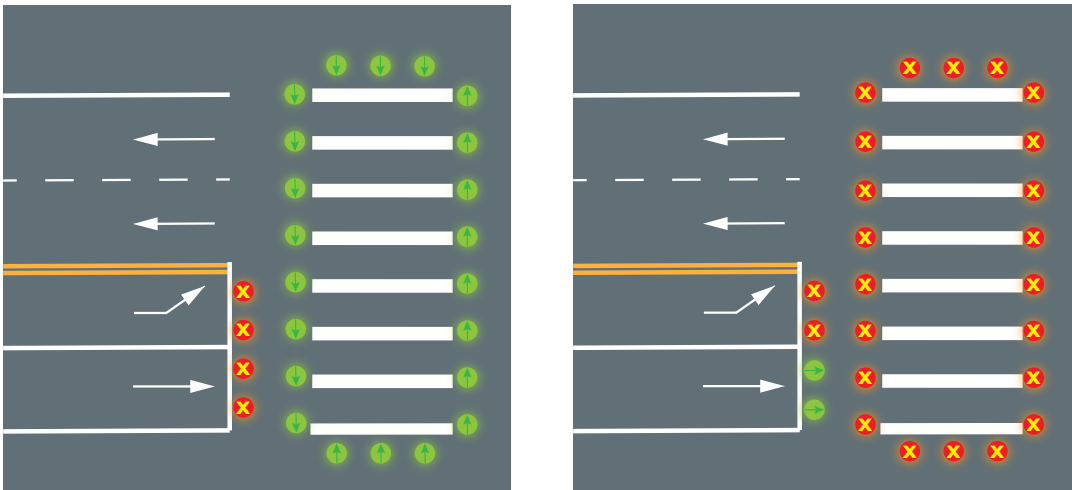
Accessory	ClairSRS Wired Controller
Product Description	The ClairSRS Wired Controller, installed at the roadside, enables network management, data collection, device management, and integration with external management platforms for the smart road studs.
Power Supply	DC12V
Operating Current	≤1A
Communication Interfaces	RJ45 Ethernet, USB, RS232, RS485, RS422
Operating Temperature	-25°C to +70°C
Communication with Road Studs	RS485
API Support	Open API interface available, supports secondary development
Dimensions	500 × 320 × 175 mm
Installation Height	<2 meters

■ Applications

Smart Crosswalk System

The Smart Crosswalk System is implemented in both signal-controlled and non-signal-controlled urban road sections and intersections to provide warnings for pedestrian crossings at intersections.

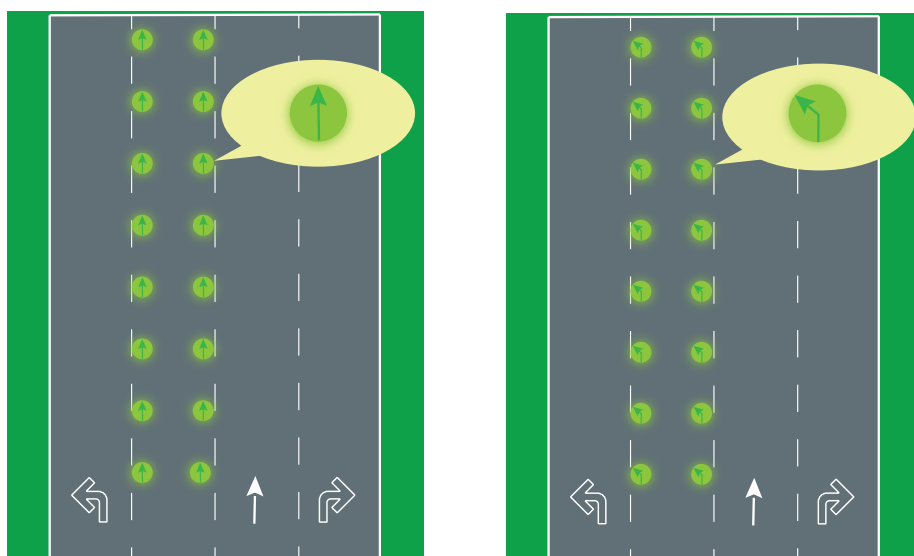
1. Pedestrian Detection: Video detectors monitor pedestrian crossing needs and red-light violations.
2. Vehicle Detection: Vehicle detectors assess traffic flow, speed, and real-time dynamics upstream and downstream of the crosswalk.
3. Warning Lights: Embedded crosswalk warning lights in the road surface provide alerts to both pedestrians and vehicles, ensuring safer passage and timely warnings.



Variable Lane

Lane Configuration: A row of smart road studs is installed on each side of the variable lane, supporting the switching between straight-through and left-turn signals. The shape and color (red, yellow, green) of the lights can be controlled by the signal control device.

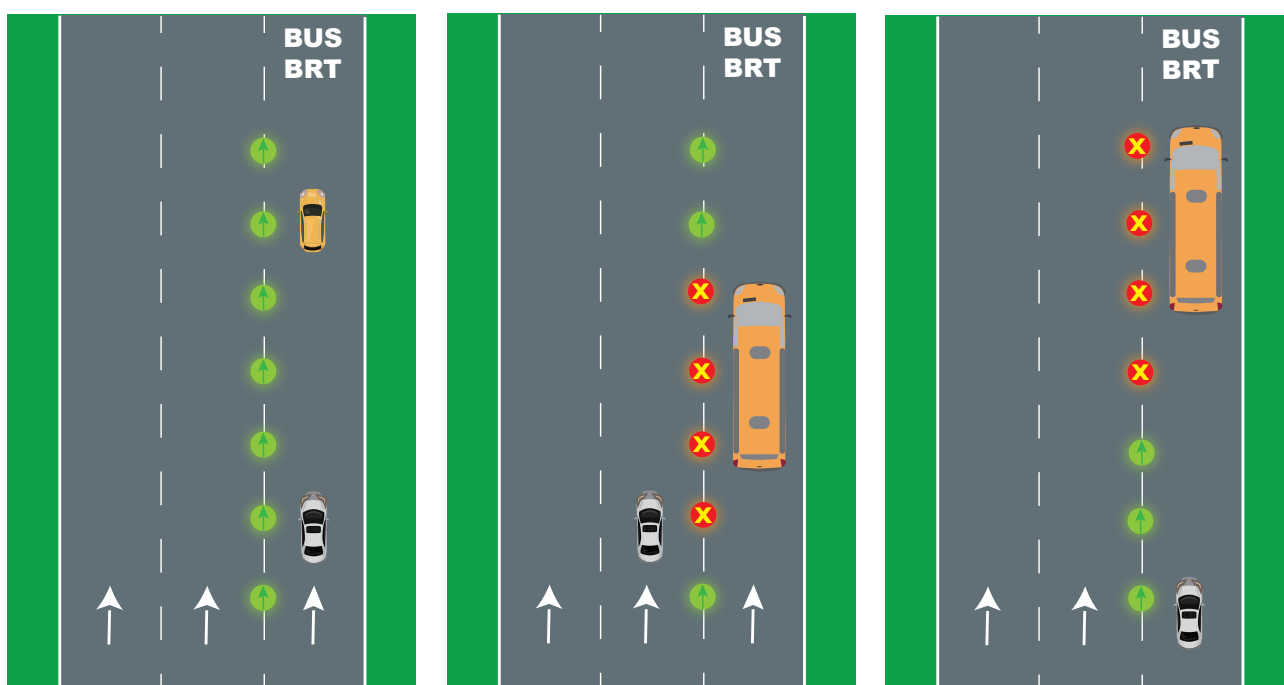
1. When Defined as a Straight-Through Lane:
 - Green Light: The road studs display a green straight-through arrow on the ground, which can flash or scroll.
 - Red Light: The road studs display a red straight-through arrow on the ground, which can flash or scroll.
2. When Defined as a Left-Turn Lane:
 - Green Light: The road studs display a green left-turn arrow on the ground, which flashes synchronously.
 - Red Light: The road studs display a red left-turn arrow on the ground, which flashes synchronously.
3. Transition from Green to Red:
 - When the light changes from green to red in any state, all road studs will flash yellow on the entire surface to maintain synchronization with the traffic signal light and timing.



Dynamic Road Rights Scheme for BRT Lanes and Bus Priority Lanes

The smart road stud system for bus priority lanes allows general vehicles to use these lanes while ensuring that BRT/bus vehicles retain priority. This approach maximizes road resource utilization, alleviates traffic pressure, and enhances public transport reliability.

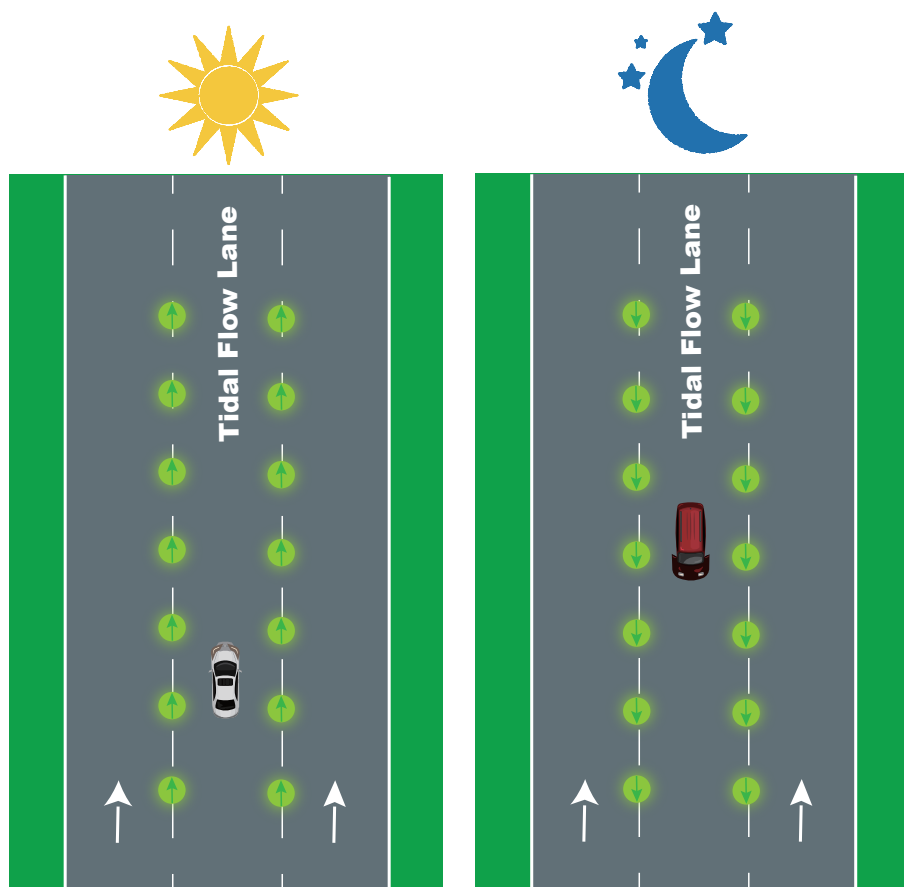
1. When No Special Vehicles are Present: The road stud displays a green arrow that scrolls from bottom to top, indicating that general vehicles are permitted to use the BRT lane.
2. When a Bus is Detected: The road stud activates a red "X" light within the detection range, prohibiting general vehicles from using the lane.
3. Detection Range: The detection range of the road stud can be adjusted. If no bus is detected, the road stud continues to display the green arrow, allowing general vehicles to use the lane, thereby improving traffic flow and reducing congestion.



Tidal Lane

Morning Peak Period: In the south-to-north direction, when the green light is activated for straight-through traffic, the road studs installed in the tidal lane will also turn green, displaying a green arrow for south-to-north straight-through traffic. The arrow can flash or scroll as needed.

Evening Peak Period: The road studs will display a green straight-through arrow in the south-to-north direction, synchronized with the traffic signal lights, to implement the tidal lane scheme effectively.



Ordering Information

Model	Description
ClairSRS-Wired	Wired-powered Active Smart Road Studs, without infrared detection module
ClairSRS-Wired-I	Wired-powered Active Smart Road Studs, with infrared detection module
ClairSRS-Wired-Controller	ClairSRS Wired Controller for network management, data collection, device management, and integration with external management platforms for the smart road studs.