Parking Alert Signs
Engineered safety systems for you parking facilities

www.passsigns.com | 480-689-1993

EchoSense20 Manual

Radar Presence Detector

PS-PD20 | Installation and operation



Technical specifications

Item	Specification
Part number	PS-PD20 / EchoSense20
Supply	10–24 VDC; use 12 VDC with PSC-5
Range	1–6 m (3.3–19.7 ft)
Detection angles	Horizontal: up to 28°; vertical: up to 60°
Technology	24.150 GHz radar
Response	20–90 ms
Relay contact	1 A at 24 VDC/AC
Output	Presence or adjustable 1–6 second pulse
Housing	ABS + PC; IP67
Temperature	−40°C to +70°C (−40°F to 158°F)
Size	118 H × 98 W × 20.5 D mm 4.65 × 3.86 × 0.81 in.

Presence detection without a ground loop

EchoSense20 uses radar to detect targets in a configured zone. Select vehicles only, or vehicles plus pedestrians, then choose a presence output or a timed trigger pulse.

Use it for parking access, vehicle-present inputs, warning signs, and suitable gate or barrier applications. It does not provide a separate pedestrian-only selection or a directional traffic decision.

Quick setup

1. Mount the radar upright on a stable surface. For normal lanes, place its center 50–60 cm (about 20–24 in.) above ground.

2. Connect power, the required relay contact, and the programming button with power off. Leave unused wires insulated individually.

3. Choose the application profile in Section 6 and lane range in Section 1. For a warning controller, use Trigger mode and select the Section 5 output.

4. Select the target mode and sensitivity. Test moving and stopped vehicles, pedestrians where required, zone edges, and the complete controller response.

For powered gates or doors, verify compatibility with the operator’s safety requirements and retain required protective devices. A general relay connection alone does not establish a monitored safety system.

In this manual

1 Product and quick setup • 2 Mounting and detection zone • 3 Wiring and PSC-5
4 Programming and profiles • 5 Complete value charts • 6 Testing and service

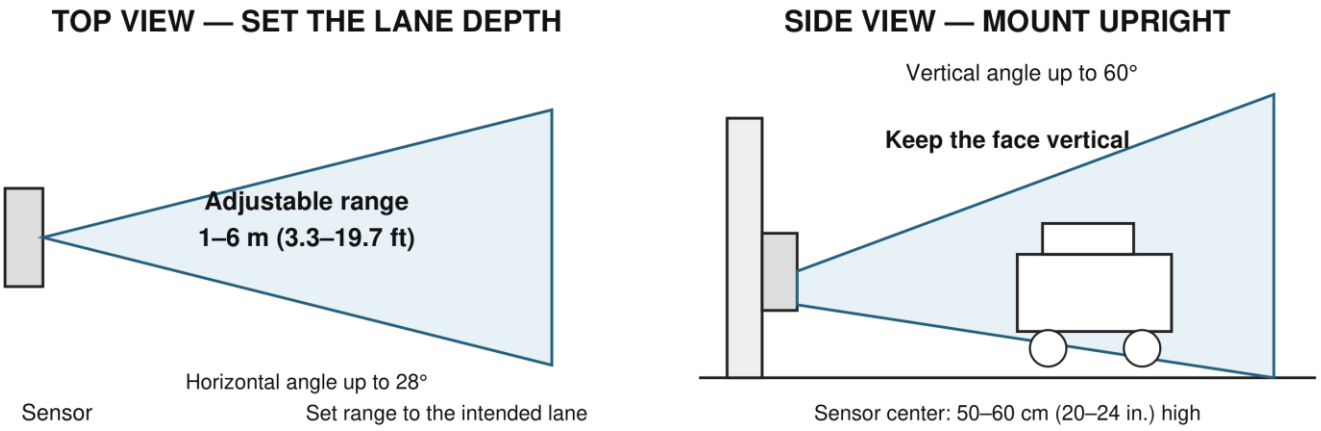
Parking Alert Signs
Engineered safety systems for you parking facilities

www.passsigns.com | 480-689-1993

Mounting and Coverage

Radar Presence Detector

Detection-zone planning



Conceptual fields, not measured boundaries. Height, targets, surroundings, and settings affect coverage.

Mounting requirements

- Install the sensor vertically and secure it so it cannot shift or vibrate. Keep the detection area clear of fixed obstacles.
- Use a sensor-center height of 50–60 cm (about 20–24 in.) for normal lanes. Revalidate coverage if the application requires a different height.
- At a barrier arm, keep the radar center at least 25 cm (10 in.) from an octagonal arm centerline, or 30 cm (12 in.) for a right-angle profile. Use the larger clearance when the arm profile is uncertain.
- Keep the ground in the detection zone reasonably flat. Guide vehicles through the intended path; the manufacturer calls for lane guidance when the vehicle approach angle exceeds 30° relative to the radar.

Set range for the actual lane

Section 1 sets depth from 1 to 6 m in 0.5 m increments. Select the shortest range that reliably covers the required area. Excess range can include objects or traffic beyond the lane and keep the output active.

The manufacturer lists horizontal detection angles up to 28° and vertical angles up to 60°. These are not a guaranteed rectangular footprint. Map the installed zone using actual targets instead of assuming a fixed width at every distance.

Select the targets you need

Section 4 setting	Application
No distinction	Detect vehicles and pedestrians. Use where both target types should activate the system.
Distinguish	Vehicle-focused detection. Test the actual vehicles and confirm the response to nearby pedestrian traffic.

Do not use a vehicle-only configuration where pedestrian detection is required. Test motorcycles, bicycles, and unusual vehicle types individually rather than assuming classification performance.

Wiring

Radar Presence Detector

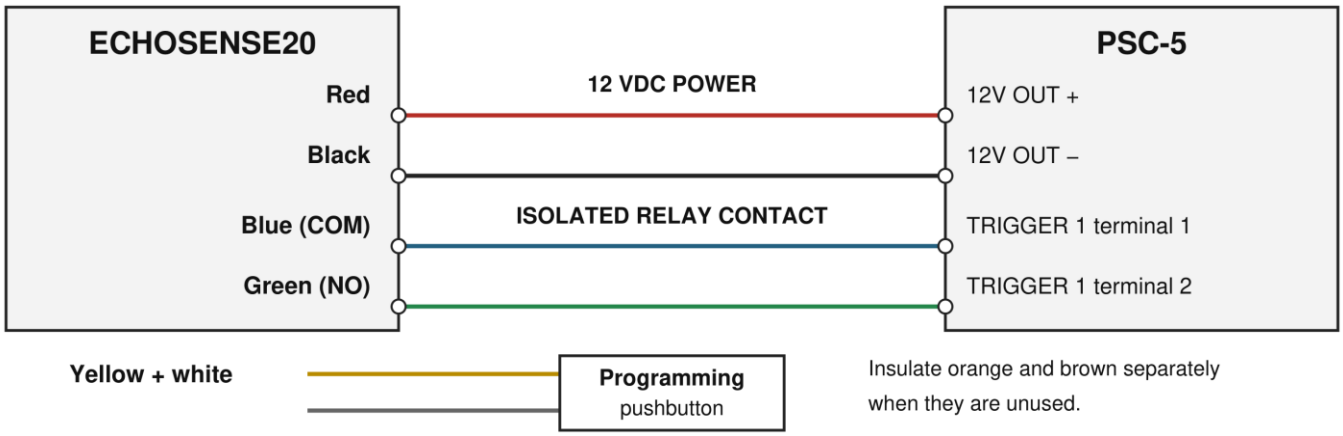
Power, relay, and PSC-5 connection

www.passsigns.com | 480-689-1993

Wire	Function
Red	Power input +12 VDC for the PSC-5 example
Black	Power input ground (−)
Yellow	Programming button input
White	Programming input ground
Orange	Relay NC
Brown	Not connected; insulate separately
Blue	Relay COM
Green	Relay NO

Use the programming pushbutton between yellow and white. Do not apply supply voltage to this pair. Use the blue relay common with green NO or orange NC as required by the controller. Brown is unused.

PSC-5 warning-system example



Connect red/black to PSC-5 12V OUT +/− and blue/green across TRIGGER 1. For Trigger 2, use that input pair. The manufacturer requires at least 200 mA available from a controller supply; keep all PSC-5 auxiliary loads within 1 A combined.

Radar starting setup: Section 6 = Trigger mode (● ● ● green); Section 1 = required range; Section 5 = Presence (● ● ● green) for a maintained signal, or a 1–6 second pulse. Set Section 4 for the intended targets.

PSC-5 starting setup: P005 = 1; P006 = 10 seconds; P007 = 0; P008 = OFF. Use P009 = CLOS for a contact that closes on detection (P010 for Trigger 2). Verify the actual relay states; use OPEn if the chosen contact opens on detection. Press ENTER to save, then RESET to exit.

Radar output duration and PSC-5 warning duration are separate. With PSC-5 P008 = On, maintained or repeated detection can restart and extend the warning timer.

Parking Alert Signs
Engineered safety systems for you parking facilities

Programming

Radar Presence Detector

Section selection and application profiles

www.passsigns.com | 480-689-1993

1. Select: Hold the programming button for about 5 seconds. Keep holding as the red section patterns advance; release at the required section.

2. Change: Short-press the button to cycle through the green value patterns.

3. Save: Hold the button until all three red lights flash together, then release. Repeat for each section.

Read lights LEFT → RIGHT. RED selects the section; GREEN shows the setting.

RED on | Off | RED flash | GREEN on | GREEN flash

Section	RED lights	Setting	Default
1	● ○ ○	Detection distance	3 m
2	○ ● ○	Sensitivity / factory reset	Medium
3	○ ○ ●	Gate closing time	6 seconds
4	● ○ ●	Vehicle / pedestrian distinction	Distinguish
5	○ ● ●	Presence or timed pulse	Presence
6	● ● ●	Application profile	Straight-bar barrier

Choose the application profile first

Section 6 GREEN lights	Profile	Required setup
● ○ ○	Straight-bar barrier	Set lane range in Section 1.
○ ● ○	Fence-style barrier	Set range and actual closing time in Section 3.
○ ○ ●	Trigger mode	Set range and presence/pulse output in Section 5.

The manufacturer identifies the second profile as a fence-style barrier. Do not assume it is a general sliding-gate profile. For a sliding gate, confirm the appropriate configuration with PASS and the operator requirements.

Sensitivity and target selection

Section 2 value	GREEN lights
Low	● ○ ○
Medium	○ ● ○
High	○ ○ ●
Factory reset	✳

Section 4 value	GREEN lights
Vehicles + pedestrians	● ○ ○
Vehicles only / distinguish	○ ● ○

Start at Medium sensitivity. Increase only when required for reliable detection; decrease when unwanted targets are detected. Factory reset is a separate selection, not another sensitivity level.

Reset only when needed

Record the installed settings first. In Section 2, select all three green lights flashing, then hold the button to confirm. This restores defaults / initializes the radar. Restart the sensor, reapply the required settings, and repeat the full test.

Parking Alert Signs
Engineered safety systems for you parking facilities

Programming Values

Radar Presence Detector

Range, closing time, and output duration

www.passsigns.com | 480-689-1993

Read lights LEFT → RIGHT. RED selects the section; GREEN shows the setting.

RED on · Off · RED flash · GREEN on · GREEN flash

The same green pattern sequence is used for range and gate closing time. Choose the section using its red lights before changing the value. Distances below retain the manufacturer's metric values; feet are approximate conversions.

GREEN lights	Section 1 range	Section 3 closing time
● ○ ○	1.0 m / 3.3 ft	2 seconds
✳ ○ ○	1.5 m / 4.9 ft	3 seconds
○ ● ○	2.0 m / 6.6 ft	4 seconds
○ ✳ ○	2.5 m / 8.2 ft	5 seconds
○ ○ ●	3.0 m / 9.8 ft	6 seconds
○ ○ ✳	3.5 m / 11.5 ft	7 seconds
● ○ ●	4.0 m / 13.1 ft	8 seconds
✳ ○ ✳	4.5 m / 14.8 ft	9 seconds
○ ● ●	5.0 m / 16.4 ft	10 seconds
○ ✳ ✳	5.5 m / 18.0 ft	11 seconds
● ● ●	6.0 m / 19.7 ft	12 seconds

Section 5 output — used with Trigger mode

GREEN lights	Output	Behavior
○ ○ ○	Presence	Maintained presence output while a target is detected.
● ○ ○	1 second	Timed pulse
○ ● ○	2 seconds	Timed pulse
○ ○ ●	3 seconds	Timed pulse
● ○ ●	4 seconds	Timed pulse
○ ● ●	5 seconds	Timed pulse
● ● ●	6 seconds	Timed pulse

A timed pulse can finish while a target is still in the zone. Use Presence when the connected device needs an ongoing occupied signal. Test the selected mode with a stopped vehicle as well as a moving one.

Example for a warning sign

Select Section 6 = ○ ○ ● (Trigger), Section 1 = ● ○ ○ for 3 m / 9.8 ft, Section 2 = ○ ● ○ (Medium), and Section 5 = ○ ○ ○ (Presence). Select Section 4 = ● ○ ○ to include pedestrians or ○ ● ○ for vehicles only. Save each section and test before use.

Parking Alert Signs
Engineered safety systems for you parking facilities

Testing and Service

Radar Presence Detector

Commissioning and troubleshooting

www.passsigns.com | 480-689-1993

Commission the complete installation

- Test each intended vehicle type at normal and slow speeds. Stop in several positions and verify presence operation.
- Test pedestrians when they must be detected, and confirm the chosen classification setting behaves as intended.
- Check both sides and the far end of the zone. Verify nearby lanes and fixed objects do not cause unwanted activation.
- For barriers, test full opening and closing cycles using controlled procedures appropriate to the operator. Keep people clear of moving equipment.
- Confirm relay release, power-loss behavior, and restoration. Verify the connected controller's timing, warnings, and safety functions.

Troubleshooting

Symptom	What to check
Missed detection	Check range, target path, upright mounting, sensitivity, and Section 4 target selection.
False or persistent detection	Reduce range to the lane; remove obstructions. Check mounting, nearby metal, and gate movement.
Gate itself triggers the radar	Verify the correct profile, arm clearance, vertical mounting, and actual closing time. Retest the complete cycle.
Relay changes; PSC-5 does not	Check blue/green wiring, selected trigger, CLOS/OPEn setting, and that programming has been exited.
Three green lights remain on after startup	Initialization may have failed. Restart; if it persists, contact PASS for service.
Green lights 1 and 3 flash in operation	May indicate gate-motion or edge-return handling. Confirm the area clears and normal operation resumes; investigate persistent symptoms.

Persistent output: check range and mounting first. If needed, use the Section 2 factory-reset / initialization procedure on page 4, restart, restore the site settings, and retest. Do not reset simply to conceal an unresolved detection problem.

Installation record

Location: _____ Date: _____ Installer: _____
Mounting height: _____ Arm clearance: _____ Supply: _____
Sections 1 / 2 / 3: _____ Sections 4 / 5 / 6: _____
Controller and input: _____ Test result: _____

Support

480-689-1993 | Support@PassSigns.com | www.passsigns.com

Keep the radar face clean and the mount secure; recheck after servicing or changes around the zone.