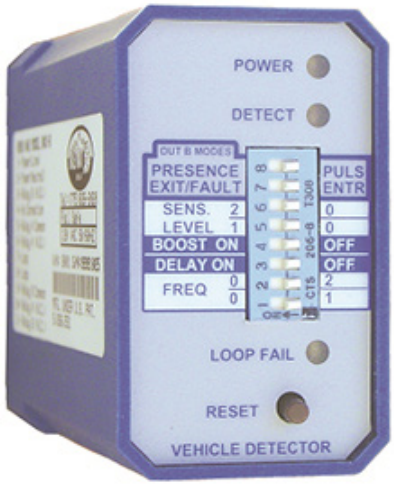
BXC Series

Single Channel Detector with Two Relays

The Model BXC is a single channel, dual output vehicle detector that incorporates the reliable vehicle detection technology found in all of Reno A & E's vehicle detectors. The BXC Series provides the dependable performance and ease of operation found in the field proven Model BX Series in a smaller, more compact package.



2.5" High x 1.55" Wide x 3.5" Deep

Ordering Information

Model BXC - X - X

Blank = Fail-Safe
S = Fail-Secure

3, 4, or 8: 3 = 120 VAC Input Power
4 = 10 to 35 VAC or VDC
8 = 240 VAC Input Power

- **Models available that operate on 12 VDC / 24 VDC / 24 VAC, 120 VAC, or 240 VAC input power.**
- **Fail-Safe or Fail-Secure versions available.**
- **Dual Relay outputs:**
  - **Output A:**
    - **True Presence™.**
    - **Output B:**
  - **Presence (Duplicates Output A).**
    - **Pulse-on-Entry.**
    - **Pulse-on-Exit.**
    - **Fault Output.**
- **Delay Outputs A and B for two seconds.**
- **Four levels of sensitivity.**
- **Sensitivity Boost for applications where high-bed vehicles might be encountered.**
- **Detect Memory feature maintains detection during momentary power interruptions of up to two seconds.**
- **Fail LED indicates current loop failures or loop failures that have occurred.**
- **Four loop frequencies.**

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BXC Series Specification

This is a Performance Specification. It is not intended to be used as Operating Instructions.

Loop Frequency: Four (4) operating frequencies (normally in the range of 20 to 100 kilohertz) are selectable by means of two front panel mounted DIP switches.

Sensitivity: Eight (8) detection sensitivity levels are selectable by means of a front panel mounted rotary switch. Vehicle detection results from a sufficient negative change in loop inductance (-DL/L). (See SENSITIVITY, -DL/L table.)

Sensitivity Boost: A front panel mounted DIP switch may be turned on to increase sensitivity during the Detect State. When a vehicle enters the loop detection zone, the detector sensitivity is automatically boosted to a higher level than the vacant loop setting. The boosted sensitivity level is maintained throughout the Detect State. When the vehicle leaves the loop detection zone, the sensitivity immediately returns to the vacant loop setting. This feature is particularly useful in preventing dropouts during the passage of high bed vehicles.

Output A TruePresence™: TruePresence™will hold Output A in the Detect state for as long as the vehicle is present in the loop detection zone and power is not removed or reset applied. TruePresence™ time applies only for normal size automobiles and trucks and for normal loops (approximately 12 to 120 sq. ft.).

Output B Modes of Operation: Output B has four modes of operation that are selected by three front panel mounted DIP switches; Presence, Pulse-on-Entry, Pulse-on-Exit, or Fault. When operating in Presence mode, the presence hold time is the same as Output A. When set to operate in Pulse mode, the 250 millisecond pulse can be set to occur when the vehicle enters the loop detection zone (Pulse-on-Entry) or when the vehicle leaves the loop detection zone (Pulse-on-Exit). When operating in Fault mode, Output B will provide a fault indication when a loop fault exists. Output B is a Fail-Secure output in either Presence or Pulse mode.

Fail-Safe / Fail-Secure Operation: The detector is factory configured for Fail-Safe or Fail-Secure operation. When the detector is configured to operate in Fail-Safe mode, Output A will assume the Detect output state (Relay A Normally Open contacts closed, Relay A Normally Closed contacts open) during a power loss or loop fault condition. When the detector is configured to operate in Fail-Secure mode, Output A will not respond to power losses or loop failures (Relay A Normally Open contacts open, Relay A Normally Closed contacts closed). Output B will always assume a No Detect state during a power loss or loop fault condition (Relay B Normally Open contacts open, Relay B Normally Closed contacts closed).

Call Delay: A two second delay of Outputs A and B can be activated by setting a front panel mounted DIP switch. Output delay is the time the detector outputs are delayed after a vehicle first enters the loop detection zone. If the Delay feature is activated, the outputs will only be turned on after the two second delay time has passed with a vehicle continuously present in the loop detection zone. If a vehicle leaves the loop detection zone during the delay interval, detection is aborted and the next vehicle to enter the loop detection zone will initiate a new full two second delay interval. By flashing the Detect LED at a four Hz rate with a 50% duty cycle, the detector indicates that a vehicle is being detected but that the outputs are being delayed.

Power Indicator: The green Power LED is Off when the detector has no power supplied or when the power level is below 75% of its nominal value. The Power LED is On when the detector is being supplied with a suitable level of power.

Detect Indicator: The red Detect LED is Off when the loop detection zone is vacant. The Detect LED is On when a vehicle is being detected. The Detect LED flashing at a four Hz rate with a 50% duty cycle indicates that the delay interval is currently timing.

Fail Indicator: The red Fail LED indicates whether or not the loop is currently within tolerance. If the loop is within tolerance, the Fail LED will be Off. If out of tolerance, the LED indicates a current loop failure by turning On (Open Loop) or flashing at a one Hz rate (Shorted Loop). If and when the loop returns to an in tolerance state, the FAIL LED will flash at a three Hz rate to indicate an intermittent loop fault has occurred and has been corrected. This flash rate will continue until another loop fault occurs, the detector is reset, or the detector loses power.

Detector Reset: Changing the position of any DIP Switch (except the Frequency DIP switches) or the Sensitivity Level setting will reset the detector. The detector can also be reset by pressing the front panel mounted push-button labelled RESET. After changing the Frequency selection switches (DIP switches 1 & 2), the detector must be reset.

Detect Memory: The Detect State of the detector is maintained during momentary power interruptions of up to two seconds.

Self Tuning: The detector automatically tunes and is operational within two seconds after application of power or after being reset. Full sensitivity and hold time requires 30 seconds of operation.

Environmental & Tracking: The detector is fully self-compensating for environmental changes and loop drift over the full temperature range and the entire loop inductance range.

Loop Inductance Range: 20 to 2000 microhenries with a Q factor of 5 or greater.

Loop Feeder Length: Up to 2500 feet (762 m) maximum with proper feeder cable and appropriate loops.

Loop Input: Transformer isolated. The minimum capacitance added by the detector is 0.068 microfarad.

Grounded Loop Operation: The loop isolation transformer allows operation with poor quality loops (which may include one short to ground at a single point).

Lightning Protection: The detector can tolerate, without damage, a 10 microfarad capacitor charged to 1,000 volts being discharged directly into the loop input terminals.

Electrical Isolation: The loop is isolated by means of the loop isolation transformer. The outputs are isolated by means of the output relays.

Power: 120 VAC version (BX-3): 89 to 135 VAC, 4 Watts maximum. 240 VAC version (BX-8): 180 to 270 VAC, 4 Watts maximum. 10 to 35 VAC or VDC version (BX-4): 10 to 16 VDC, 80 milliamps maximum / 20 to 34 VDC, 50 milliamps maximum / 18 to 32 VAC, 4 Watts maximum.

Ruggedized Construction: The detector enclosure is made from a high temperature rated plastic. Printed circuit boards are 0.062 inch thick FR4 material with 2 oz. copper on both sides and plated through holes. Circuit board and components are conformal coated with polyurethane.

Operating Tempurature: -30°F to +180°F (-34°C to +82°C).

Connector: Rear mounted 11 Pin Amphenol connector. (See PIN ASSIGNMENTS table.)

Size: 2.50 inches (6.35 cm) high x 1.55 inches (3.94 cm) wide x 3.50 inches (8.89 cm) deep (excluding connector).

Weight: 7.3 oz (207.0 gm).

Sensitivity & -ΔL/L

Setting	0	1*	2	3
-ΔL/L	0.32%	.16%*	.08%	.02%

* Denotes Factory Default. Changing Sensitivity Switch will

Factory Default Settings: Front Panel Switches

Switch	ON	OFF	Default
1	Four (4)Frequency Selections		OFF
2			OFF
3	Two Second Call Delay	No Delay	OFF
4	Sensitivity Boost	No Boost	OFF
5	Four (4) Sensitivity Selections		ON
6			OFF
7	Pulse On Exit / Fault Output	Pulse On Entry	OFF
8	Output B Presence	Output B Pulse	OFF

*Rotary Sensitivity (0 to 7), default is 3

Pin Assignments

Pin	Function
1	AC Line / DC +
2	AC Neutral / DC Common
3	Relay B, Normally Open (N.O.)
4	No Connection
5	Relay A, Common
6	Relay A, Normally Open (N.O.)
7	Loop
8	Loop
9	Relay B, Common
10	Relay A, Normally Closed (N.C.)
11	Relay B, Normally Closed (N.C.)

Note: Relay contacts shown are with power applied, loop(s) connected, and no vehicle present.

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