1. Introduction

AB-DBA-180 intelligent vehicle detector, is used mainly for vehicle presence detection. Suitable for parking and toll road vehicles and traffic signal control systems. AB-DBA-180 series are all of single-type, it can only connect an inductor wire, but has two output relays providing two output signals; AB-DBA-180 series can provide different output signals for the user to choose.

2. Technical Parameters

Power Supply: AC220V、AC110V、AC/DC24V、AC/DC12V alternatively, 2.5W power
Frequency Range：20 KHz—170 KHz
Sensitivity：Three levels adjustable
Reaction Time：100 MS
Environmental Compensation：Automatic drift compensation
Wire Inductance：Recommended 80uH-300uH (cable included) Maximum 50uH-500uH (cable included)
Connection Length：Up to 5 m, twisted at least 20 times per meter, total resistance less than 10 ohms
Storage Temperature：-40ºC~ +85ºC
Working Temperature：-40ºC~ +65ºC
Relative Humidity：Max 95%
Dimensions：85×74×36mm

3. Instructions

3.1 Detector Installation

Vehicle detectors must be installed as close as possible away from the search wire, waterproof dry environment. When installing vehicle detectors, we should maintain a certain distance with other devices or equipment (about 10-20mm) for easy maintenance.

Whether the loop detector can work well depends largely on the connecting induction wire. Several important parameters of the wire including: wire material, wire shape and whether it is embedded correctly. About installation wire, please refer to the following chapters of "Wires Installation Guide."

3.2 Vehicle Detector Wiring Diagram

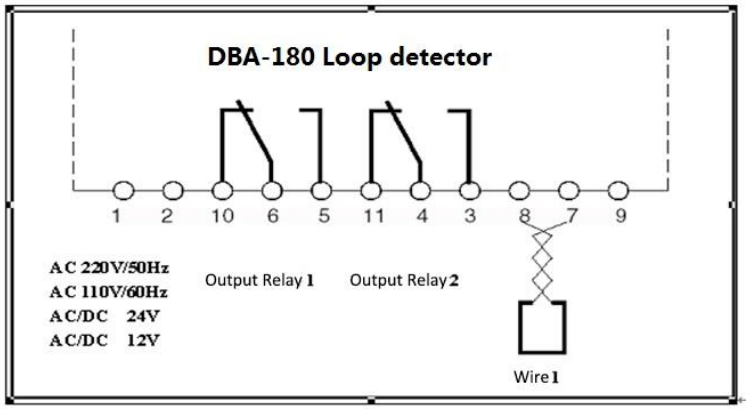


Figure 1: AB-DBA-180 Terminal wiring diagram

3.3 Setting Working Frequency

Wire frequency will be adjusted by two DIP switches provided on the board. As adjusted, you must first turn off the power and then remove the detector from the outlet, open the plastic shell. DIP switch 6 (LA) for setting the frequency, switch in the "ON" position indicates the low-work, in the "OFF" position indicates the high frequency mode of operation. After the frequency adjustment, the detectors will automatically re-calibrated power-on reset.

Note: AB-DBA-180 is factory set to high frequencies. When two detectors installed close proximity, the user can set the two detectors at different frequencies.

3.4 Sensitivity Adjustment

AB-DBA-180 vehicle detector sensitivity is divided into three levels, through three top panels (see Figure 2) on the slide DIP switch settings:
"H" position is the highest sensitivity;
"M" position is the intermediate sensitivity;
"L" position is the lowest sensitivity.

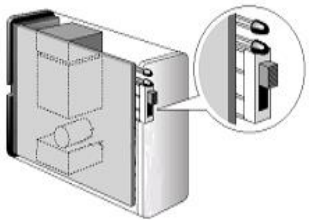


Figure 2: Sensitivity Switch

3.5 System Reset and Commissioning Work

Note: When we do the detector reset we should ensure that the wire is away from any vehicle or other metal objects.

1) After power detector, it will automatically detect and tune the connected wire. This process is about 5 seconds, meanwhile the LED on the top panel will flash (on for 0.5 seconds, off 0.5 seconds) several times.
2) The detector wire in the tuning process will be tested, when the inductance of the wire outside the allowable range or open circuit, short circuit, LED will blink continuously. If the wire tests are normal, the LED on the top panel is off and does not blink, and enter the normal working state (in this case, the relay does not pull).
3) The detector detects vehicles coming, it will pull the standard output corresponding relay, while the corresponding LED indicator lights; when the vehicle leaves, the emission standards corresponding to the output relay, while the corresponding extinguished LED lights.
4) If the detector does not respond with an induction wire, readjust sensitivity.

3.6 Error indication

When the detector POST, if it is detected the wire is not connected or the wire inductance is not within the allowable range, the corresponding LED will blink. It flashes as follows:

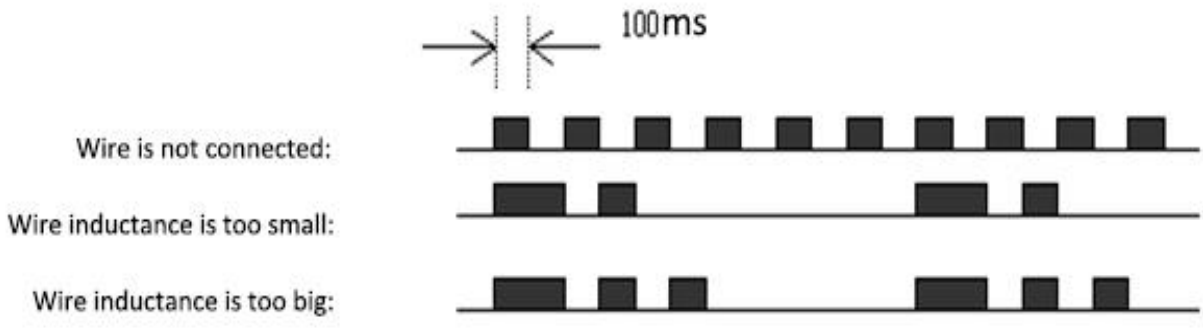
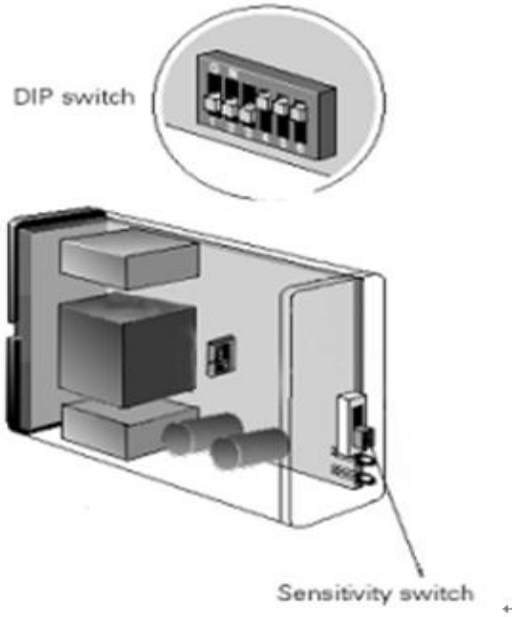


Figure 3: Error Indication

3.7 Relay Output

When a vehicle enters the wire, output relay is set by DIP switch on the main control board.
AB-DBA-180 series have only one wire, corresponding to two output relays. The signal of relay 2 is determined by DIP3 (SW2).The signal of relay 1 is determined by DIP1、DIP2 (SW0、SW1)



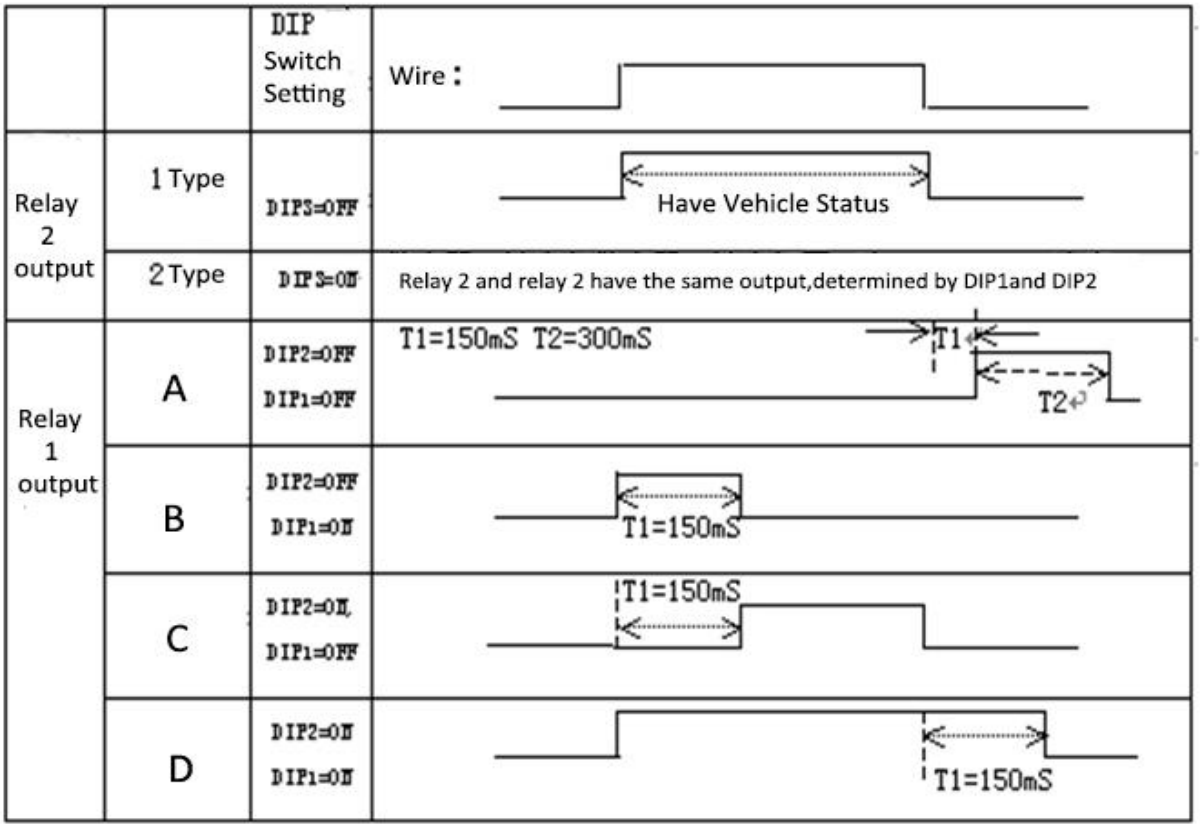


Figure 4: AB-DBA-180 Output Signal and Settings

4. Wire Installation Guide

Whether the loop detector can work well depends largely on the connecting induction wire. Several important parameters of the wire including: wire material, wire shape and whether it is embedded correctly. The installer must note the following:

4.1 Wire Crosstalk

When the two induction wire is very close, the magnetic field of the two wires added together, causing mutual interference. This phenomenon is crosstalk. Crosstalk can cause erroneous test results and loop detector deadlock. Between adjacent belonging to different sensors wires to eliminate crosstalk, you can take the following measures:

- Choose different operating frequencies.
- Increase the spacing between adjacent wires. Ensure that the spacing between the detection wires is greater than 2 m.
- The wire leads be well shielded, shielded cable must be grounded in the probe. Wire cables and connectors best multi-strand copper wire. Between the cable and connector best not have the wiring. If you must have a terminal, ensure reliable connection, with a soldering iron to weld them together, and placed in waterproof place. The area of wire cross-sectional is not less than 1.5 mm. The best use of double waterproof lines.

4.2 Wire Shape and Numbers of Turns

The detection wires should be rectangular unless the conditions do not permit. The direction of the two long sides' vertical the vehicle (metal) movement direction, the recommended spacing is 1 m from each other. The length of the long side depends on the road width and usually ends narrower 0.3 meters than the width of the road. If the wire perimeter is more than 10 meters, it need to be around two turns. If it less than 10 meters, requires three turns or more. Perimeter within six meters, need to around four or five turns. A good way is to install adjacent wires alternately three turns and four turns.

4.3 Wire Installation Essentials

When embedding wire, in the first use of cutting road machines cut grooves on the road. 45-degree chamfer at the four corners to prevent damage corners wire cables. Grooving width is generally 4 mm; the depth is 30-50 mm. But also cut a groove through the side of the road for the wire leads. Specifically as shown in Figure 5:

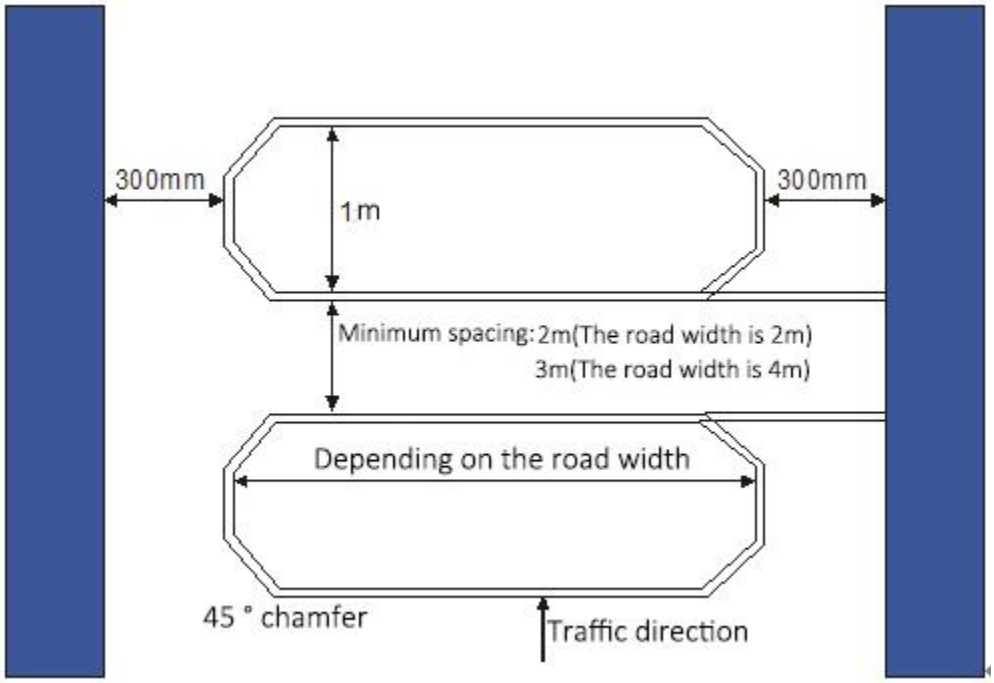


Figure 5: Wire Installation Diagram

When laying cables, leaving a sufficient length to connect to the loop sensors, can also guarantee no joints. After wound wire cable, leading the lead cable through outgoing trucking. Output leads are tightly twisted form at least one meter twisted 20 times. Leads maximum length should not exceed 5 meters, as the sensitivity of the detection wire decreases with increasing lead length, so the length of lead cable as short as possible. After burying the coil, sealed with cement or asphalt.