

WIRING THE RT-50A HEADLAMP CONTROL

This is for the Pros

We provide the headlamp control output mostly for Original Equipment, Chassis Builders, and professional installers. We view the difficulty of this installation as beyond the typical do-it-yourselfer. (Note: we also view a remote start as being beyond the typical do-it-yourselfer. This is still a bit easier than a remote-start.)

You May Need to Buy Parts

The Rain Tracker kit comes with the headlamp connector, but no external relays, and **no auto headlamp control switch**.

Warning!

Level of Difficulty: Medium

Wiring the headlamp control usually requires external relays. Do not try this if you are not familiar with wiring automotive circuits.

Warning!

You are on your own!

We do not provide wiring diagrams for how to install the headlamp control for your vehicle. You will need to find your vehicle's wiring diagram. You will need to understand how the headlamp system operates, and select the best wiring approach. We will not help you with the specifics of your headlamp control installation. The safety and efficacy of the installation is the responsibility of the installer.

Warning!

Do not overload Circuits or wires!

Do not wire the headlamp control output (GRN and GRN/YEL wires) directly to the headlamps. Doing so will burn out the relay contacts, which are rated for 15 Amps. The output is meant to control some external relay that supplies current to the headlamps. The external relay may be either one you supply or one built into the vehicle, and will typically be rated for 30 or 40 Amps.

Similarly, the wires that carry current from the external relay to the headlamps must be big enough— typically 12 Ga. Be sure the headlamp control draws headlamp power from the circuit fused for headlamps— the required current will blow most accessory circuit fuses.

Turn Back While There is Sill Time!

If you are not certain that this is within your skill level, we would urge you to not proceed.



The Rain Tracker headlamp control is intended for professional installation, such as this one from a Hyundai special-accessories program.

How the Rain Tracker Controls Headlamps

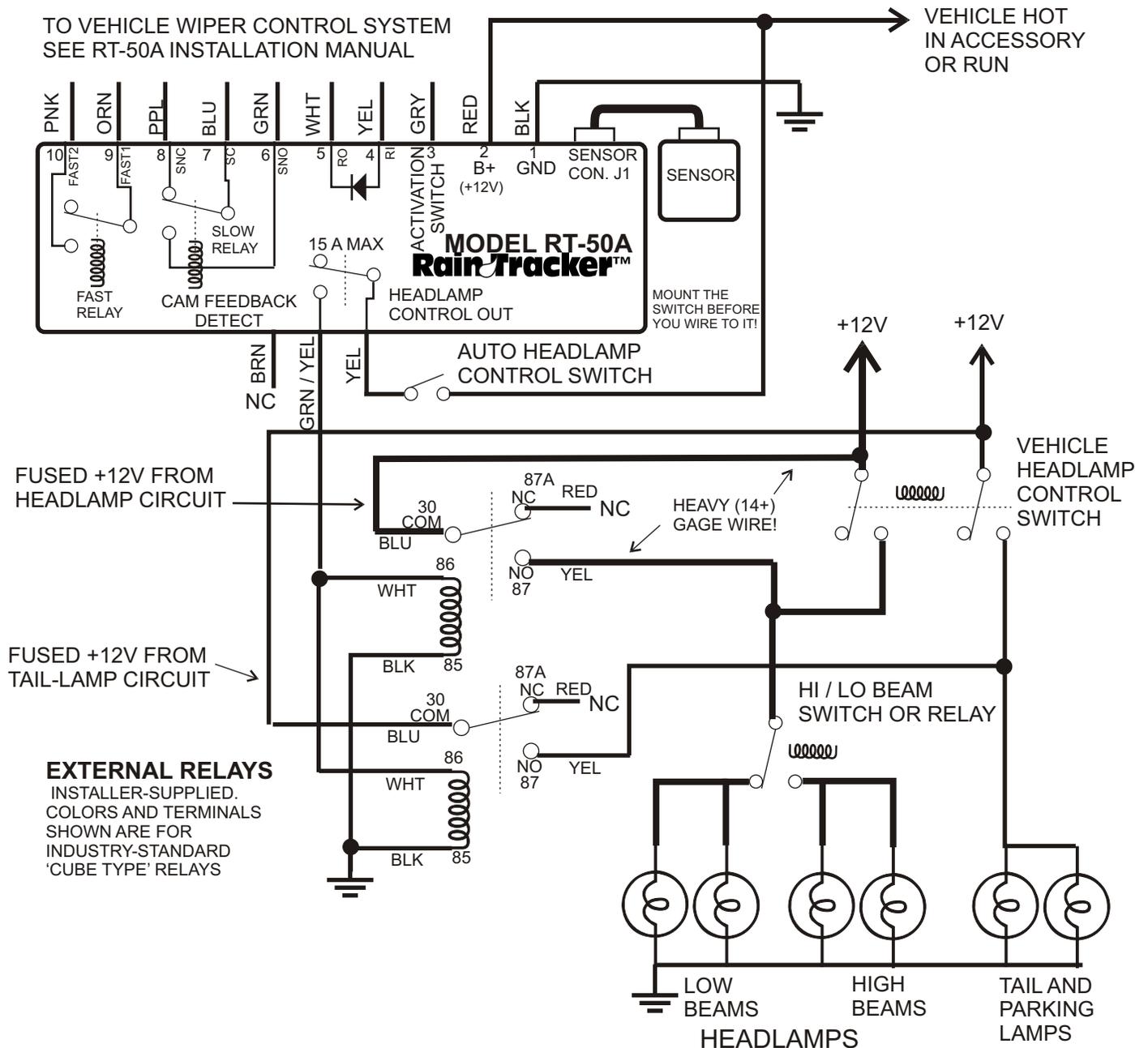
Really, really well. The Rain Tracker senses the ambient light level outside the vehicle, and turns on the headlamps when it is dark, or when it is raining. Most US States require you to have your headlamps on when it is raining, and it is simply a good idea.

The interface module of the RT-50A has a headlamp control relay contact output. This is a 15A relay, so it cannot handle the headlamp current directly. You will need to either supply external relays, or use the Rain Tracker to control an existing vehicle headlamp control relay. Also, you will need to wire a switch in series with the headlamp control in order to turn the automatic headlamp control on and off.

Why the Rain Tracker Headlamp Control is Better Than Most Headlamp Controls.

1. A really smart control strategy. The Rain Tracker headlamp control will respond quickly to a strong change in ambient conditions. This means that the lights come on quickly in a tunnel. But, it responds slowly to gradually changing "lights could be on or off" conditions. This means the lights don't turn on and off frequently in dawn or twilight conditions. The usual new-car headlamp control strategy is to simply make the control sluggish.

2. Really good optics. That's what we do at Opto-Electronic Design, Inc. The Rain Tracker light sensor sees in all directions better than most, if not all, new car headlamp control sensors. It has an unfair advantage: it is mounted right on the windshield, so it can take in a wider range of angles.



NOTES

- The external relays handle the headlamp current, so they need to be high current capacity. 30A and 40A relays are readily available.
- **Never, ever drive the headlamps directly from the headlamp control output— it will fail.**
- The Rain Tracker headlamp control operates in parallel, also supplying current to the headlamps.
- Be sure to tie into the headlamp circuit upstream of the HI/LO BEAM switch. Otherwise, the system could turn on both high and low beams simultaneously, overloading the circuit.

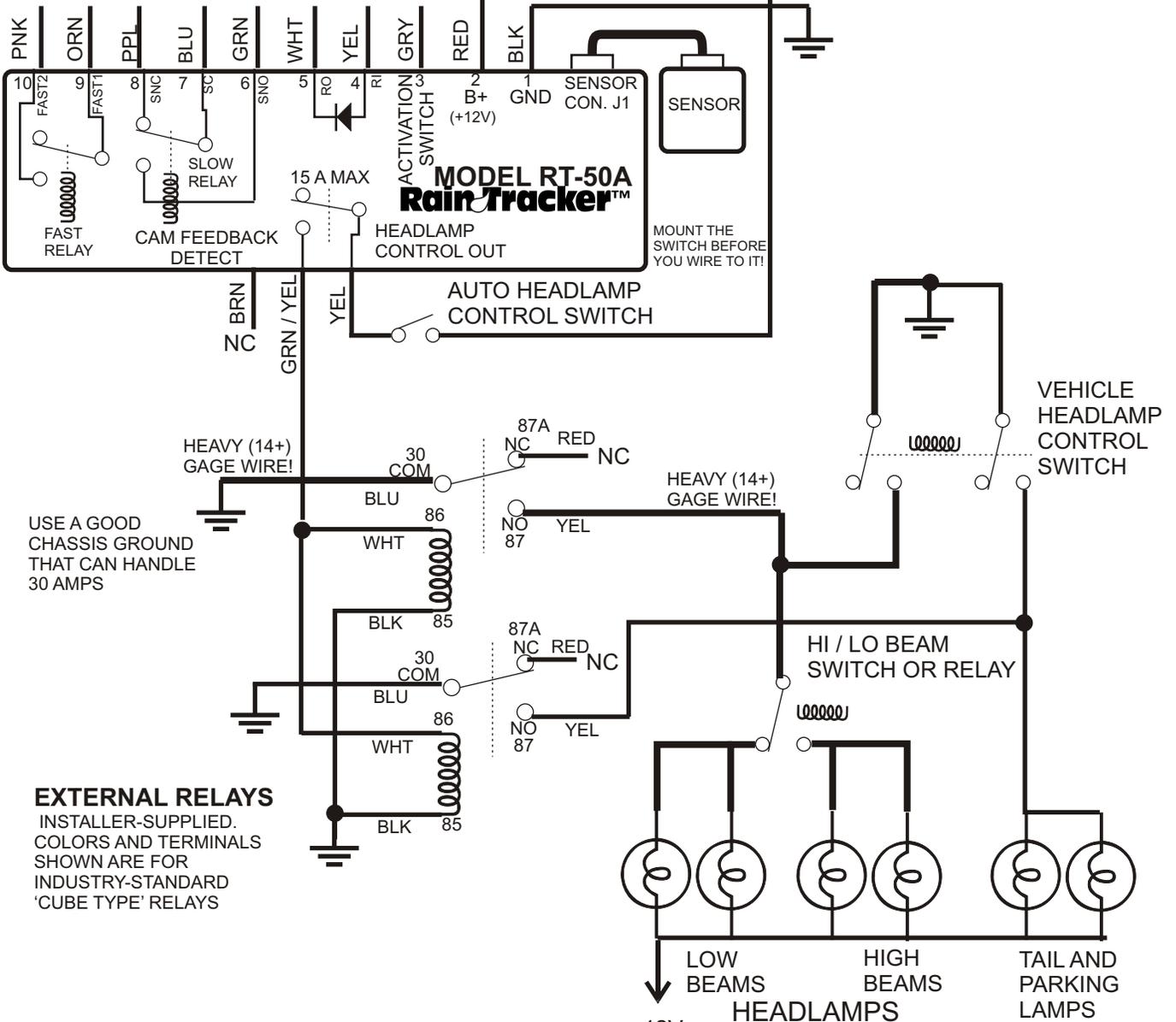
APPLICATIONS

- This is typically for vehicles that supply high current directly to the headlamps from the wiper switch.
- You can also use this approach to directly supply headlamp current in vehicle-relay controlled applications, where the vehicle headlamp control relay supplies current to the headlamp in place of the vehicle headlamp switch above.
- Use this when one side of the headlamps is grounded— most common.

RAIN TRACKER HEADLAMP CONTROL WIRING:
EXTERNAL-RELAY, HOT SIDE SWITCHING

TO VEHICLE WIPER CONTROL SYSTEM
SEE RT-50A INSTALLATION MANUAL

VEHICLE HOT
IN ACCESSORY
OR RUN



USE A GOOD
CHASSIS GROUND
THAT CAN HANDLE
30 AMPS

EXTERNAL RELAYS
INSTALLER-SUPPLIED.
COLORS AND TERMINALS
SHOWN ARE FOR
INDUSTRY-STANDARD
'CUBE TYPE' RELAYS

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- The Rain Tracker headlamp control operates in parallel, also supplying current to the headlamps.
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+12V APPLICATIONS

This is typically for vehicles that supply high current directly to the headlamps from the wiper switch.

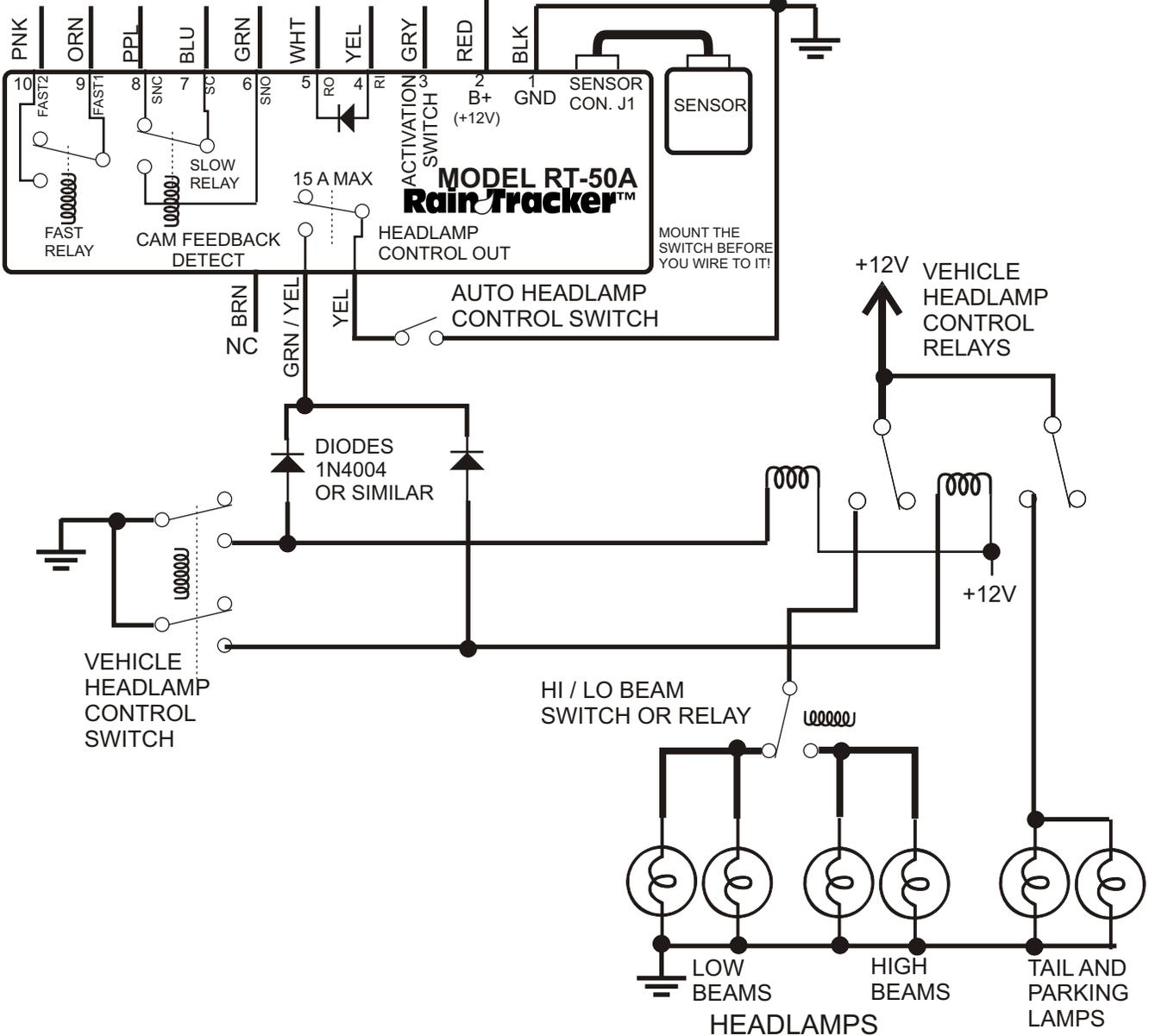
You can also use this approach to directly supply headlamp current in vehicle-relay controlled applications, where the vehicle headlamp control relay supplies current to the headlamp in place of the vehicle headlamp switch above.

Use this when one side of the headlamps is +12V– this is less common on US vehicles, somewhat more so on Asian.

**RAIN TRACKER HEADLAMP CONTROL WIRING:
EXTERNAL-RELAY, GROUND SIDE SWITCHING**

TO VEHICLE WIPER CONTROL SYSTEM
SEE RT-50A INSTALLATION MANUAL

VEHICLE HOT
IN ACCESSORY
OR RUN



NOTES

- The Rain Tracker does not supply the headlamp current, so you do not need to use special heavy gage wiring for this.
- You need the diodes connected to the Rain Tracker headlamp control output so that the parking lights and the headlamps maintain independent control.
- There are many possible variations of this— adjust as needed.
- If the vehicle has pop-up or concealed headlamps, you will need to supply control for that as well.

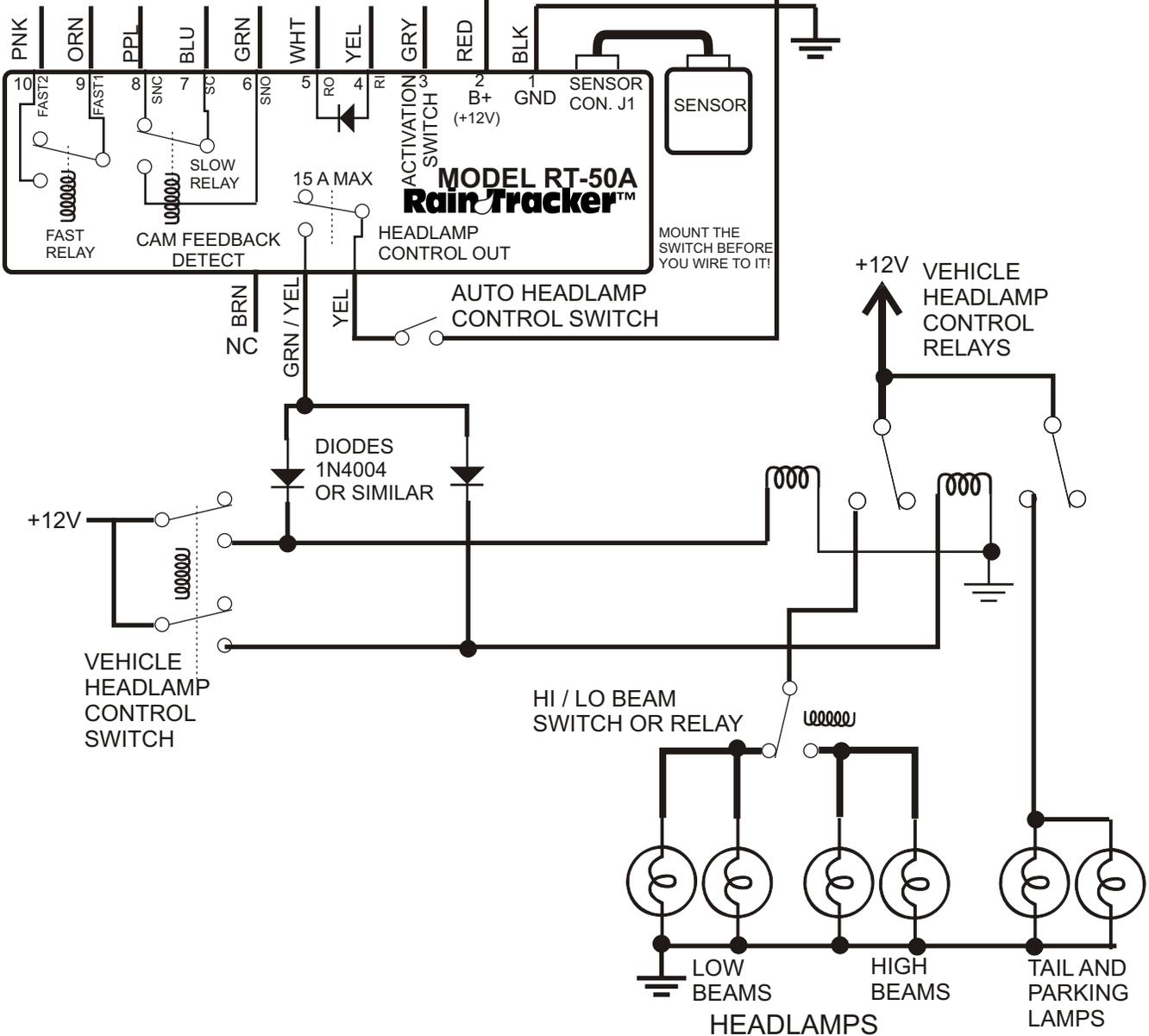
APPLICATIONS

- For vehicles that supply high current to the headlamps through a relay. The headlamp control switch does not carry the headlamp current, but instead controls the headlamp relay.
- In this application, one side of the relay is connected to +12 V. The relays are engaged by grounding the other side.
- We have shown this with the vehicle headlamp wiring as hot side switching, but because the Rain Tracker is controlling the relay, not the headlamp current, the Rain Tracker portion is equally applicable to ground side switched headlamps.

**RAIN TRACKER HEADLAMP CONTROL WIRING:
-VEHICLE RELAY, GROUND SIDE CONTROL**

TO VEHICLE WIPER CONTROL SYSTEM
SEE RT-50A INSTALLATION MANUAL

VEHICLE HOT
IN ACCESSORY
OR RUN



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APPLICATIONS

- For vehicles that supply high current to the headlamps through a relay. The headlamp control switch does not carry the headlamp current, but instead controls the headlamp relay.
- In this application, the relays are engaged by giving them a positive voltage.
- We have shown this with the vehicle headlamp wiring as hot side switching, but because the Rain Tracker is controlling the relay, not the headlamp current, the Rain Tracker portion is equally applicable to ground side switched headlamps.

**RAIN TRACKER HEADLAMP CONTROL WIRING:
-VEHICLE RELAY, HOT SIDE CONTROL**