POWERFLEET®

CP4 Camera/DVR System

Quick Start Guide

For detailed warnings, installation instructions and user guides, refer to www.smartwitness.com

Table of Contents

System Overview

The CP4 Camera/DVR system provides several capabilities for drivers and management. The DVR system records activities in a continuous loop (overwriting the oldest video with the newest when memory is used up) for retrieval at any time and allows for events to trigger video clips that can be maintained onboard or sent remotely. When equipped with a display, the DVR system can also display real-time footage for drivers to see what the cameras see.

Problems Solved

CP4, an in-vehicle drive recorder, offers vehicle owners an effective risk reducing means to aid in the investigation process, encourage safe driving, monitor driving behaviors, and enhance the overall facility safety. The CP4 will record exactly what happened before, during and after an incident.

Features

- Wide angle, rugged weatherproof 720P cameras with infrared for low-light conditions
- SD card storage and configurable resolution by camera for flexible capacity based on usage
- Sleep/wake feature to conserve vehicle battery
- Event trigger for saving specific clips augments full-time recording loop
- Remote storage and retrieval of footage (for Wi-Fi and Cellular versions)

System Components

The CP4 system is shipped with everything needed to install the system as a stand-alone solution. The below also references optional components available as well as parts required for integration with other Powerfleet products.

Component	Description	Quantity
DVR	Black box with various input and output connections	1
SD card	128GB SD card shipped in the DVR	1
Locking enclosure	Box that surrounds the DVR to protect from unauthorized users unplugging components and/or removing the SD card	1
Power cable	4-PIN connector with 3 wires (2 fused), red, white, and black	1
Camera cable	Cable bundle with 4 video connections of varying length	1
Remote control	Cable with integrated red button and LEDs (red, blue, and green)	1
Camera with case	Industrial camera with mounting enclosure designed to protect the integrated cable. Quantity shipped per DVR is based on order.	1 to 4
Camera extension cable (15' length)	Extension cable to connect the camera to the DVR. Default length is 15', other lengths available.	1 per camera
Voltage converter	Silver box with 4 integrated wires; used for voltage inputs between 18 & 50 VDC with 13.8VDC output	1
Noise filter	Black box with 4 integrated wires; used for all installations	1
A/V cable	Cable bundle with 1 A/V connection & 8 wires with butt splices.	1
GPS antenna	GPS receiver with double-sided tape and a metal plate for mounting options. Typically, not used.	1
Microphone	External microphone for adding audio to the video recordings.	1
Wake Relays	Relay used to wake the camera system after non-use for 601 and OC systems. Choose 36VDC (36VDC vehicles) or 48VDC (48 volt vehicles).	2
Event Relay	Relay used to trigger a specific video clip recording when events occur (for VAC, 601, and/or OC systems).	1
Wi-Fi module	USB Wi-Fi module for camera connection to remote "Sentinel" software	Optional
Cellular module	USB Cellular module for camera connection to remote "Sentinel" software	Optional
Display	7" display used for providing the vehicle operator with views of the cameras.	Optional

Other components typically required that are not supplied (tools also not supplied):

- Butt splices
- Spade terminals
- Extension wire
- Cable/wire ties
- Mounting screws or bolts/nuts
- Drill with various drill bits

SD Card Configuration

For the CP4 camera system to work, the SD card must be programmed to your liking. The following details the SD card configuration process.

Acquiring the SD card configuration software

Download and install the CP4 configuration tool software from https://support.smartwitness.com. The CP4 configuration tool software can only be installed on a computer running Microsoft Windows 8 or newer operating system and you must have a physical SD card interface.

Using the SD card configuration functions

The default configuration file "settings.ini" is loaded on each SD Card, however, if you encounter any issues, contact Powerfleet Support. For additional configuration instructions, refer to the SmartWitness Device Configuration Guide.

Step 1. Remove the SD card from the DVR and insert it into a computer.

Step 2. Save the default configuration file to a local folder on the same computer.

Step 3. Open the CP4 Configuration software.

Step 4. Click Open in the bottom right.

Step 5. Navigate to the folder where the settings file was saved, then click open.

Step 6. Customizing the Device page

a. If there are more than two cameras, check the box next to each camera cable you connected a camera to

Step 7. For SD-only DVRs: Customizing the Info page.

a. Click the "Retrieve time settings from my PC" button.

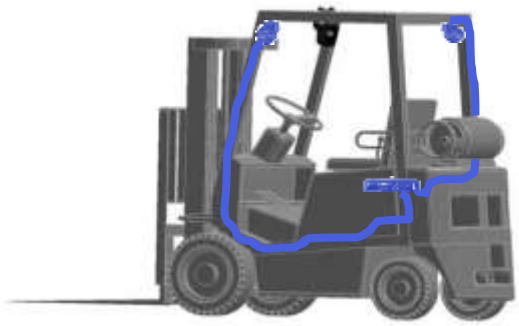
b. On the "Service" tab, check the box for "Vehicle No." and enter the VAC ID (vehicle type and number) in the "Vehicle No" field. 12 character maximum.

Step 8. Customizing the Connectivity page.

a. For Wi-Fi DVRs, make sure the Mobile Network APN is blank and enter the SSID and Password of the network the DVR will need to connect to.

Step 9. Once all the changes are made, click the "Initialize SD Card," then "Save," and then eject the SD Card.

Installation Instructions

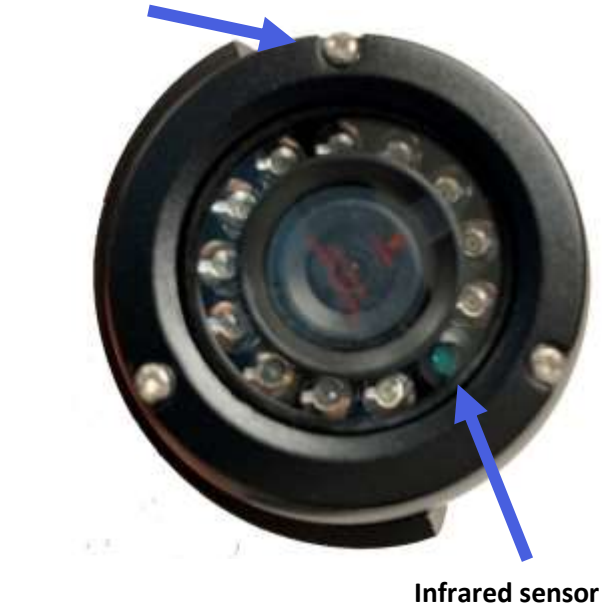
1 Find and clean a flat surface inside the vehicle body to mount the DVR, noise filter, and (if applicable) voltage converter. Criteria include: ▪ Avoid areas of excess vibration or where loose parts can contact the DVR. ▪ Within range of the camera cable length (cables available from 15' to 60') ▪ Within range of a power source (wires can be extended as needed ▪ Parallel to the ground. 	**2** Determine the cable routing path to the vehicle and output connections (refer to wiring diagram). Avoid excessive heat and moving parts, use existing cable channels to protect cables from damage.

3 Using double-sided tape to mount the locking case in the cleaned area.

4 Connect the applicable cables for your installation. Power cable, camera cable, and A/V cable are required.

7 Route the camera cables though the hole in the lower half of the camera enclosure.

8 Regardless of the camera mounting bracket angle, rotate the camera in the following orientation.



9 Secure the top half of the camera enclosure using the 3 screws provided and remove the lens protective film.

10 Mount the camera(s) using the provided double-sided tape and/or screws. Typically, 1 camera is mounted facing forward and 1 camera is mounted facing backward.

11 Fine tune the camera angle (up, down, left, right) and secure it using the set screw.

12 Connect the camera extension cable(s) to the camera(s), and route the cable(s) back to the DVR.

13 Connect the camera extension cables(s) to the DVR camera cable at the desired channel(s).

- Channel 1 cable is the shortest cable.
- Channel 4 cable is the longest cable.

14 Make the remaining cable connections based on the applicable wiring diagram below.

15 Mount the noise filter using 8/32" screws or double-sided tape.

16 Mount the voltage converter (if applicable) using #10 screws and/or double-sided tape. The voltage converter should be mounted to a verticle structure if possible.

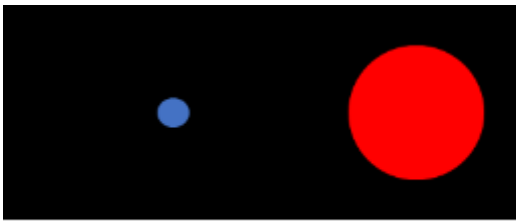
17 Mount the event relay using double-sided tape (if applicable).

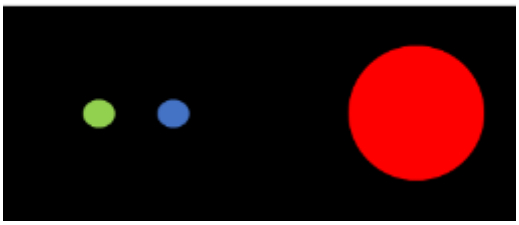
18 Mount the remote where vehicle operators can access it (if desired).

19 Install the configured Wi-Fi or Cellular dongle (if applicable).

20 Verify the camera is configured and working as desired by observing the LEDs on the remote. After boot up, you should see one of the following (solid on lights):

SD card only





Wirelessly connected

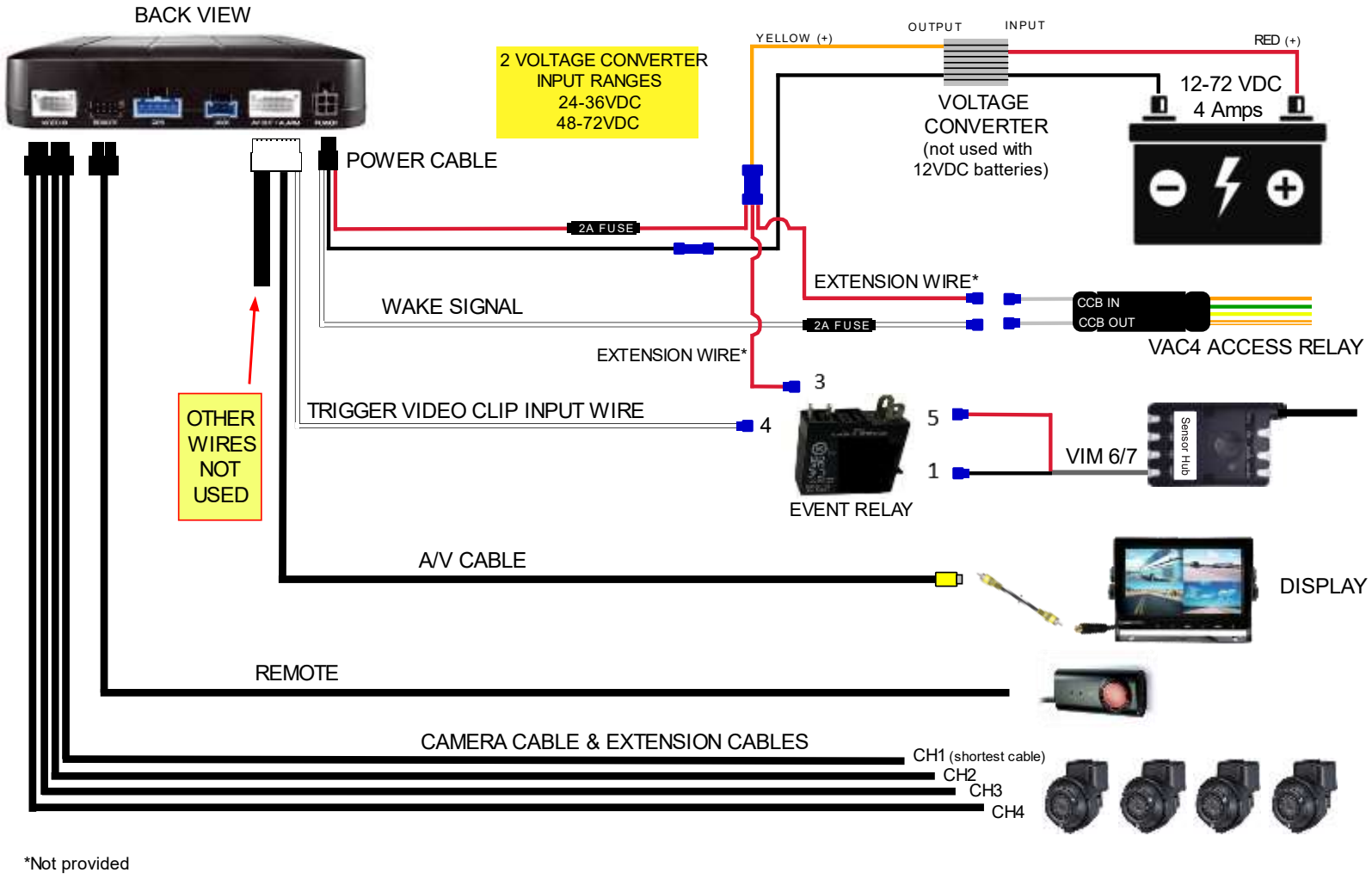
21 Secure all cables and wires.

22 Install the locking case cover (the key is common among all locking cases).

Installation complete!

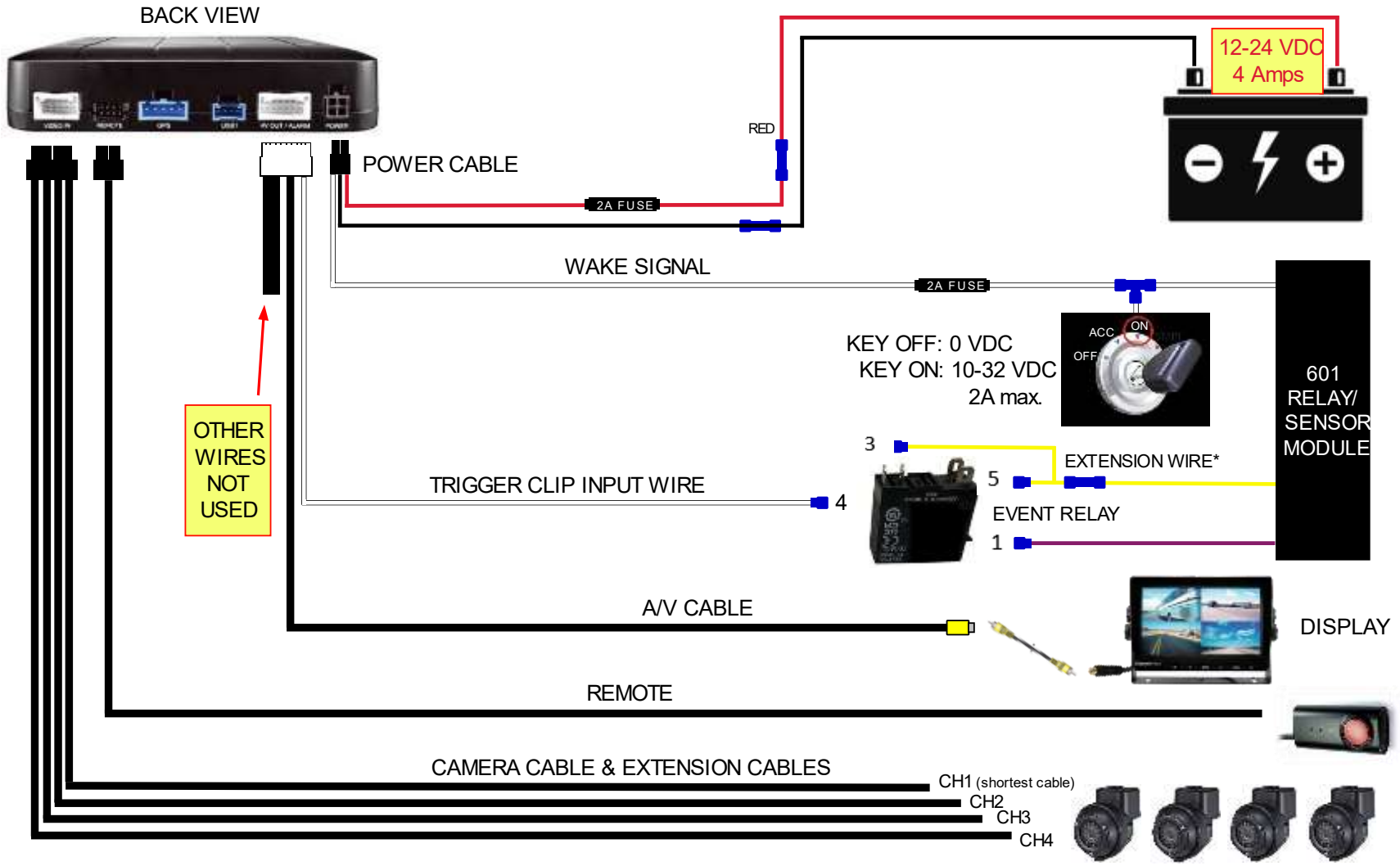
Wiring Diagram – to VAC4 – 12-72 VOLT VEHICLES

- VAC Must be connected to the same power and ground connection as the DVR (**ground connection cannot be the chassis**)
- VAC Output Alert must be set to Constant On, and Available Always

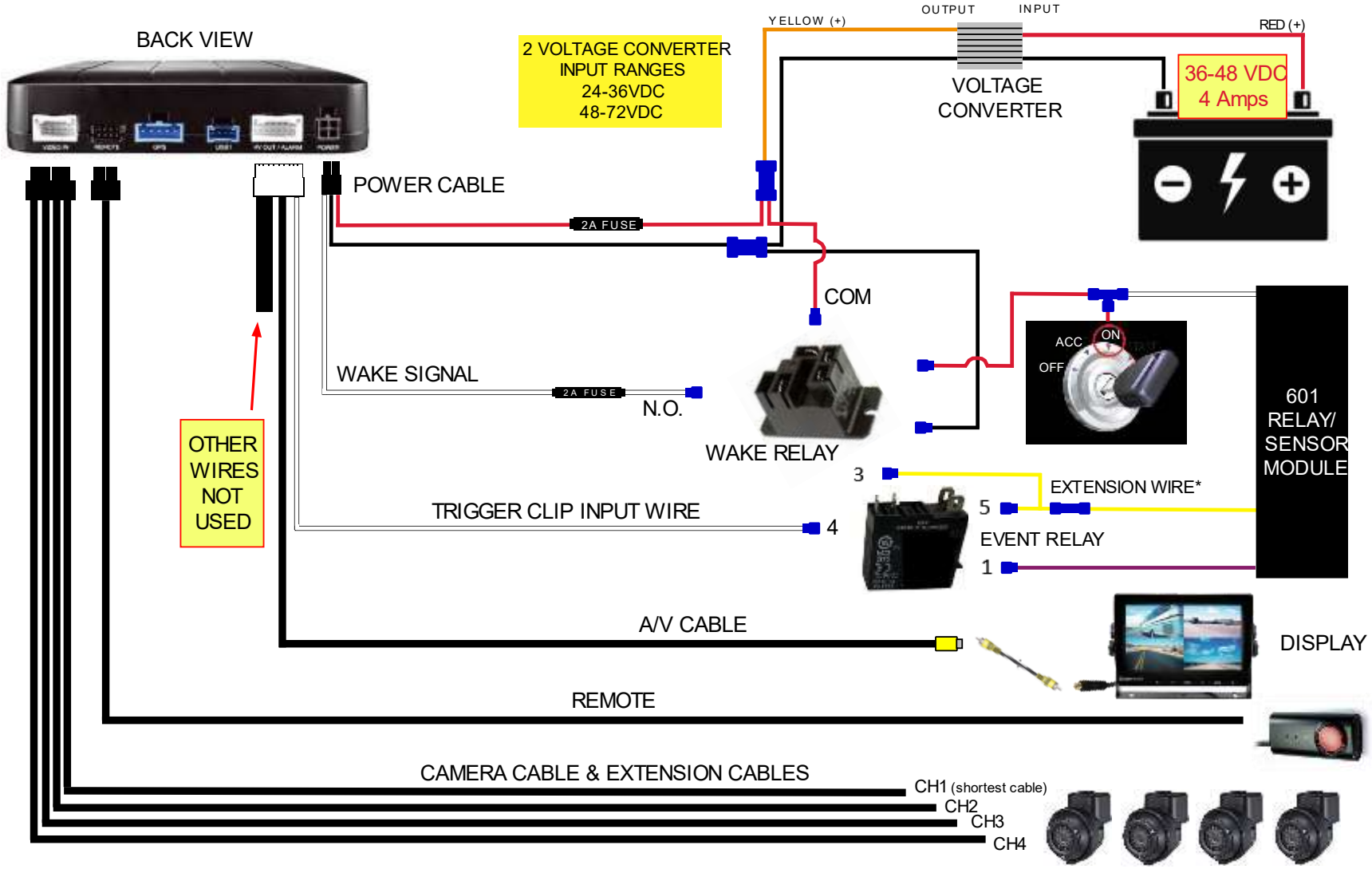


*Not provided

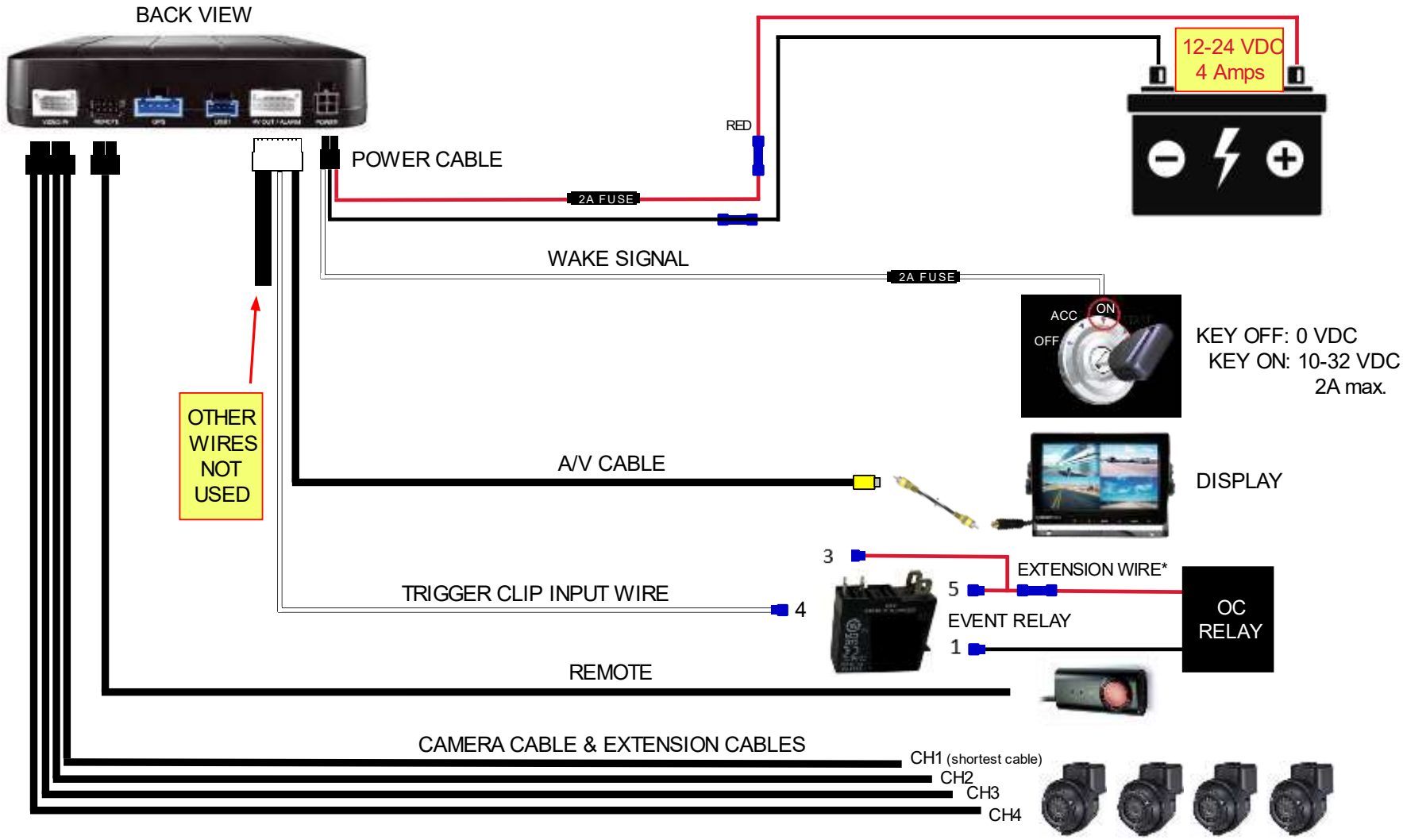
Wiring Diagram – to 601 - 12-24 VOLT VEHICLES



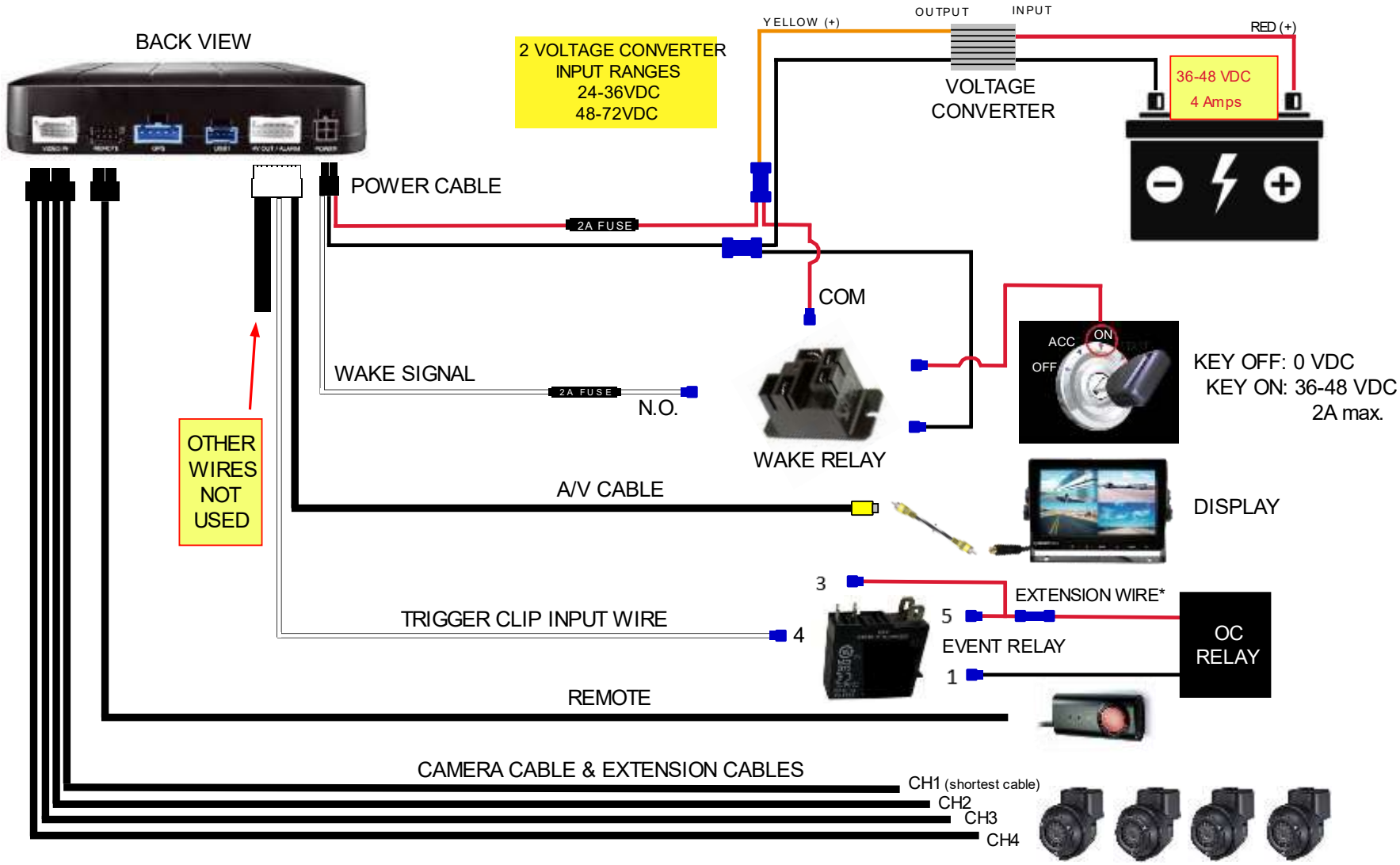
Wiring Diagram – to 601 - 36-48 VOLT VEHICLES



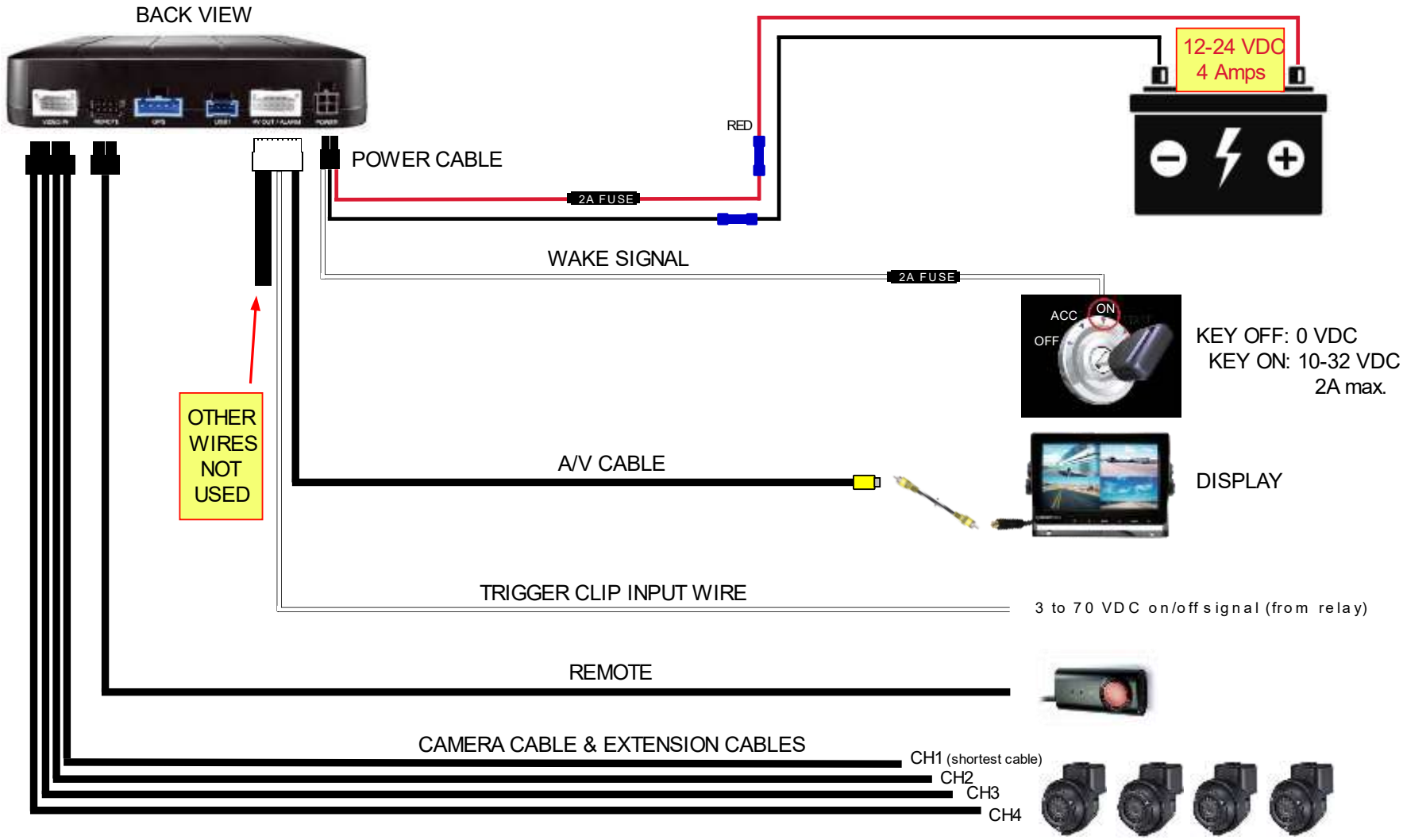
Wiring Diagram – to OC – 12-24 VOLT VEHICLES



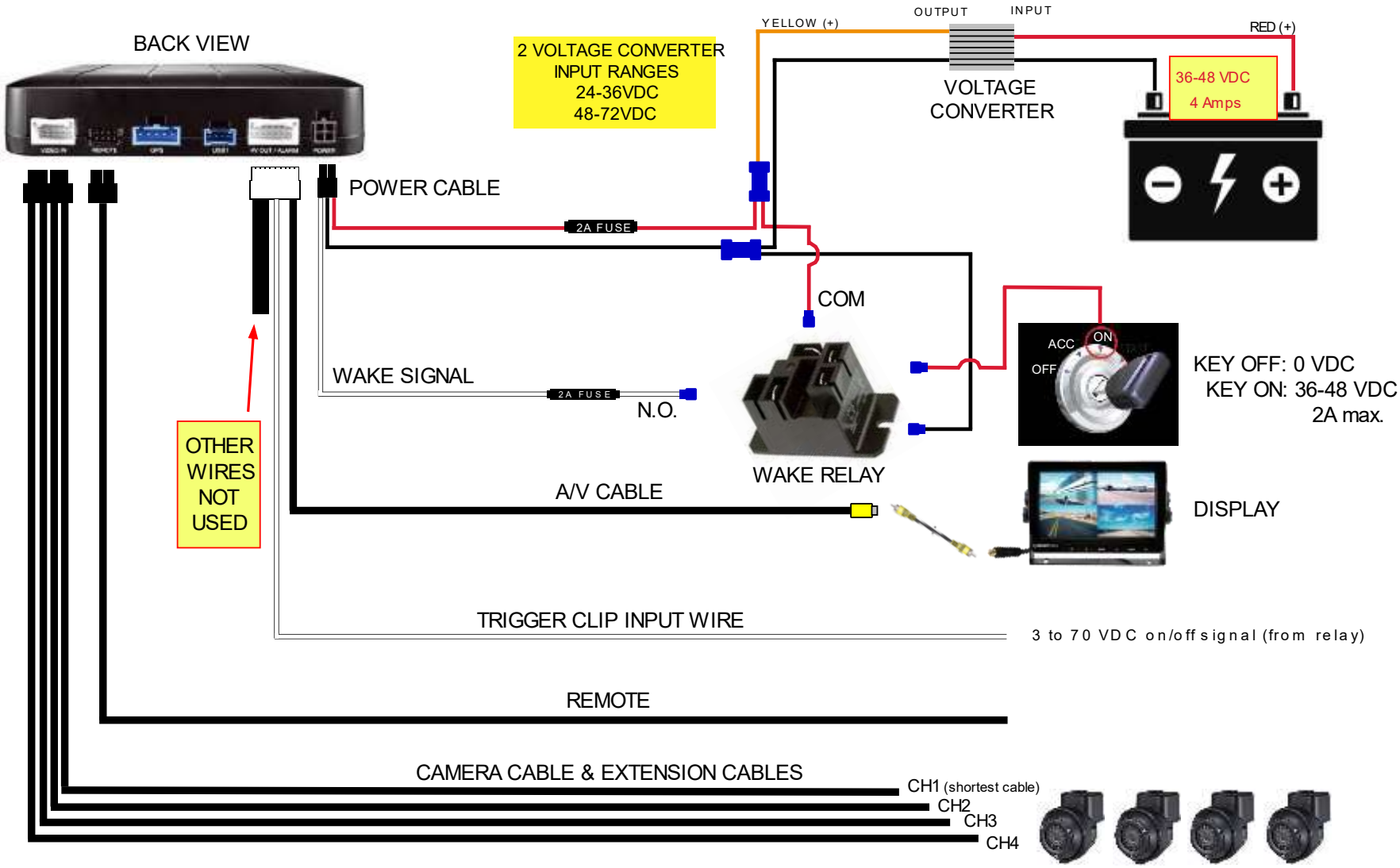
Wiring Diagram – to OC – 36-48 VOLT VEHICLES



Wiring Diagram – Stand Alone – 12-24 VOLT VEHICLES



Wiring Diagram – Stand Alone – 36-48 VOLT VEHICLES



SD card retrieval and maintenance

The DVR constantly records live streams and stores events while the camera is on. Once the SD card memory is full, the newest data overwrites the first data recorded. This cycle continues until the card is cleared or replaced.

- The SD card should only be removed after the power to the DVR is removed and the Blue LED on the remote turns off.
- Initialize the SD card monthly, or whenever the SD card is corrupted. Note initialization erases all data resident on the SD card.
- SD cards have limited read/write counts and may require replacement every 6-12 months.

User Interactions

Operator experience without a display

Recording – The DVR requires 20-30 seconds to fully boot up once the wakeup is activated. The unit is fully booted up when the Blue LED is solid after the Red LED turns off. Live recording is continuous. When specific event clips are being stored, the Blue LED blinks. A new video clip cannot be generated until the Blue LED is solid on.

Remote – The remote has LEDs indicating the status of the DVR. Refer to the troubleshooting section for details on LED status indication. The red button on the remote is used to force an event video clip.

Triggered events – When an event does occur to activate alarm1, the camera and DVR system will automatically store a special video clip without any notification or required actions from the user.

Operator experience with a display

When a display is incorporated, the DVR and camera operate the same as without a display, however the vehicle operator will be able to see the camera output on the installed display. Refer to the SD card configuration for determining which camera(s) are displayed.

Reviewing live and event recordings – SD card

Download and install the SD Viewer software from https://support.smartwitness.com. The SD Viewer software can only be installed on a computer running Microsoft Vista, 7, 8, or 10 operating system.

Pull the SD card from the DVR you want to review events of continuous streams from and connect the SD card to the computer with the SD Viewer software. Open the SD Viewer software. You can open all the saved clips by clicking the top left button and selecting the SD card you connected. The clips will appear to the right. Each camera recording will play simultaneously if multiple windows are selected in the layout.

Reviewing live and event recordings – Cellular or Wi-Fi

Log into www.sentinelvms.com. Click on the events tab to see a listing of events for review. If the SD cards were programmed with the correct vehicle IDs, you can sort by vehicle. The events you are interested in are "Alarm In" and "Panic button" which is the remote.

Specifications

Enclosure: Plastic

Input voltage (DVR): 12 – 50VDC

Current consumption: standby <10mA; output active <500mA per output

Environmental rating: IP54

Dimensions: 58x95x25mm; cable length 6 feet

Temperature rating: 10 to 55 °C

Cameras: Wide angle, infrared enhanced, 720p HD capable

GPS: GLONASS (external antenna)

Real-time clock: Internal battery powered

LED Status (after booting)

	Red LED	Blue LED	Green LED
Off	Normal	No recording	No network
On (solid)	Video error	Continuous recording	Network connected
Blinking slow	SD card error	-	Network connecting
Blinking fast	SD card full	Recording event clip	-

Troubleshooting

<table>
<tr><th>Issue</th><th>Troubleshooting Steps</th></tr>
<tr><td>Red LED is solid</td><td>
One of the connected cameras is not receiving a signal or the wrong camera type was connected. Acceptable camera connections are outlined below by camera type (A, AM, or C)
<table>
<tr><th>Channel 1</th><th>Channel 2</th><th>Channel 3</th><th>Channel 4</th></tr>
<tr><td>A or AM</td><td></td><td></td><td></td></tr>
<tr><td>A or AM</td><td>A or AM</td><td></td><td></td></tr>
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<tr><td>A or AM</td><td>A or AM</td><td></td><td>C</td></tr>
<tr><td>A or AM</td><td>A or AM</td><td>A or AM</td><td>C</td></tr>
</table>
</td></tr>
<tr><td>Red LED is blinking slow</td><td>SD card error or corruption. Make sure the SD card is configured correctly and installed with the locking door closed.</td></tr>
<tr><td>Green LED is blinking</td><td>The Wi-Fi dongle or Cellular dongle are not connecting to the configured network.</td></tr>
<tr><td>Camera 4 not working</td><td>Camera 4 requires a “C” model camera, not the standard “A” system supplied by Powerfleet.</td></tr>
</table>

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