

# OBD BACCABLE

## MANUAL

**DISCLAIMER:** BACCABLE is a project developed exclusively for educational and research purposes. The use of this tool on vehicles operating on public roads or in any context that may cause harm to people, property, or violate applicable regulations is strictly prohibited.

The author of this project assumes no responsibility for any damages, malfunctions, or consequences resulting from the use of BACCABLE. The end user bears full civil, criminal, and legal responsibility for its use.

It is strongly recommended not to use this project in real-world vehicle applications.

The installation in hidden location, requires specific technical skills in automotive electrical and electronic systems to avoid errors that could expose to safety risks.



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## 1. INSTALL

### 1.1 Composition



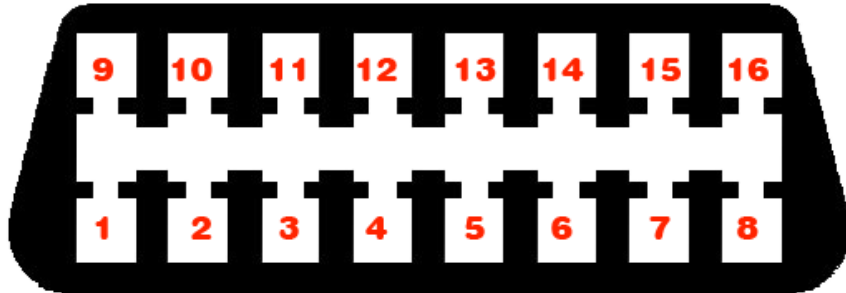
#### Composition

The cable and the "wire taps" (quick connectors or IDC) shown in the previous photo are optional. The Baccable can be used by connecting it directly to the OBD if the vehicle is not equipped with an SGW or if it has an SGW bypass (SGW = Secure Gateway). Therefore, using the included cable and quick connectors is not mandatory.

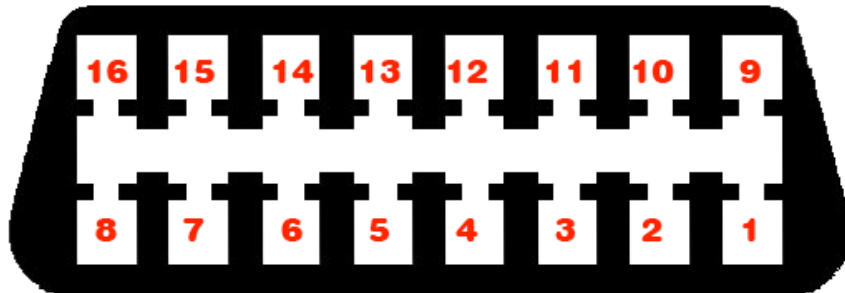
## 1.2 Pinout

The Baccable OBD V.3 is equipped with an OBD connector with the following pinout:

### Male BACCABLE connector



### Female OBD connector



|                    |                    |                    |                    |
|--------------------|--------------------|--------------------|--------------------|
| <b>1 CMD1</b>      | <b>2 CMD3</b>      | <b>3 CAN BH H</b>  | <b>4 GND</b>       |
| <b>5 GND</b>       | <b>6 CAN C1 H</b>  | <b>7 STS3</b>      | <b>8 LED CTRL</b>  |
| <b>9 STS1</b>      | <b>10 STS2</b>     | <b>11 CAN BH L</b> | <b>12 CAN C2 H</b> |
| <b>13 CAN C2 L</b> | <b>14 CAN C1 L</b> | <b>15 CMD2</b>     | <b>16 +12VOLT</b>  |

#### BACCABLE Pinout and OBD cable pinout

Pin 16 corresponds to the 12V power supply of the vehicle's OBD port but can also be connected to a 5V supply if needed, as the BACCABLE supports a wide range of input voltages.

### 1.3 Install instructions (to OBD port)

- 1) When inserting the BACCABLE into the vehicle's OBD port, be careful not to press the PROGRAMMING button. If this happens, remove the BACCABLE and reinsert it.



**PROGRAMMING button**

- 2) When removing the BACCABLE from the vehicle's OBD port, do not pull on the casing. Instead, push by inserting your fingertips on the OBD connector side towards yourself to avoid stressing the latch that holds together the case (the part with the "BACCABLE" label) and the part where the OBD connector is located.

If the joint is accidentally disengaged, proceed by completely removing the parts (PCB and case) from the OBD connector. Then, reinsert the PCB (printed circuit board) into the case with the "BACCABLE" label, aligning the parts as shown in the previous image. Next, insert the side with the OBD connector until it touches the case.

**WARNING:** The OBD connector must have the two longer pins aligned with the long side. If inserted incorrectly, remove the OBD connector side, rotate it, and reinsert it.

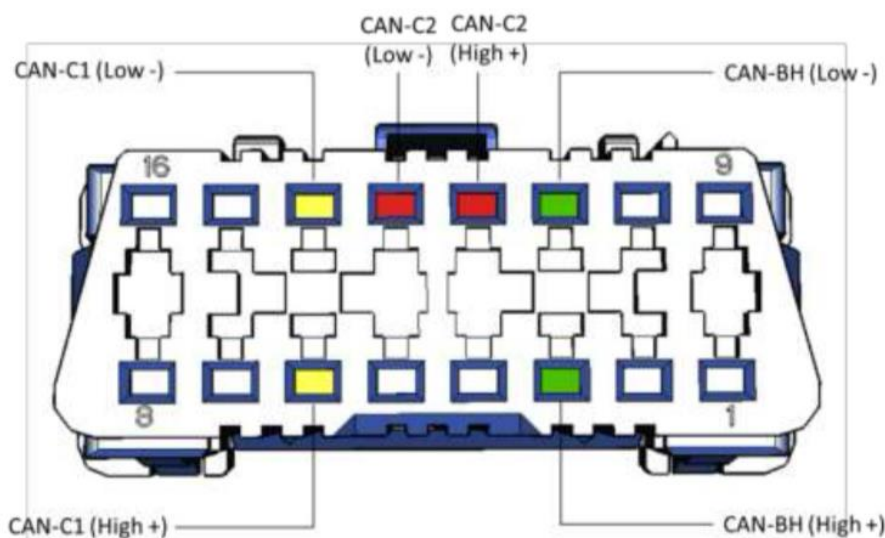
Once the OBD connector side is in contact with the case, hold the BACCABLE firmly and press firmly on all four corners, ensuring that the cover gradually snaps into place from all sides until fully secured.

## 1.4 OBD Cable install instructions (optional)

- 1) In addition to the cable, IDCs (also known as "current taps") are provided. These are quick connectors that allow you to tap the desired signal without interrupting the vehicle's wiring. The dual quick connectors are designed for the H and L pins, while the single ones can be used for power supply or H and L pins.
- 2) The quick connector is capable of crimping a wide range of wire sizes; however, this versatility makes the dual quick connector more complex to use. To secure the wires of the double quick connector on the CAN bus, it is not enough to insert the wires into the slot and close the cover. First, it is necessary, using a small flat-head screwdriver, to push the wire into the guillotine to make it penetrate properly. If this preliminary operation is performed correctly, closing the connector cover firmly should engage the locking clips, ensuring the connector is tightly closed with no gaps between the transparent cover and the black base. The red single quick connector, on the other hand, can be tightened with pliers, so it does not require any preliminary steps. Always check the solidity of the connection after tightening.

The following image shows pins on the OBD diagnostic connector (the connector in the image is viewed from the external pin side, not the wire side). Pins 4 and 5 are the ground (GND), and pin 16 is the 12 Volt.

**Connettore multiplo di Diagnosi DLC**



I pin del connettore multiplo di diagnosi dedicati alle tre reti sono:

- Pin 3 – CAN-BH High
- Pin 11 – CAN – BH Low
- Pin 12 – CAN-C2 High
- Pin 13 – CAN-C2 Low
- Pin 14 – CAN-C1 Low
- Pin 6 – CAN-C1 High

## 1.5 First Startup (with additional wiring)

During the first startup, perform the following preliminary checks:

1. Verify that all connections have been made according to the diagram and the requirements defined in this document.
2. With the ignition on, check that the green LED inside the BACCABLE enclosure is illuminated, confirming correct power supply reception.
3. If the dashboard does not turn on or random errors appear, check that the H and L pins have not been reversed or that neither has been mistakenly connected to another wire.
4. Check that the internal blue LED flashes twice at startup, indicating correct activation of the default-enabled Immobilizer function (note: without perfect alignment between the eye and the LED, it may not be visible—multiple startups may be needed for this check).
5. As soon as the BACCABLE is inserted, if the vehicle dashboard is already on, the instrument cluster should flash once to indicate that the immobilizer is active (enabled by default). If this does not happen, check the connections to the CAN bus.

## 1.6 First Startup (insertion into standard OBD port)

At first use, you must define which functions you wish to use on your vehicle by accessing the SETUP menu.

Instructions for accessing the SETUP menu, scrolling through the list of available functions, enabling/disabling features, and permanently saving the settings are provided in paragraph 2.1.

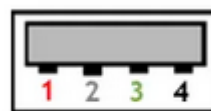
## 1.7 Notes on Connections to 5V (optional)

If the **BACCABLE** is powered by the 5V supply, you can connect to, for example, the **USB HUB** located in the glove compartment of the center console, next to the handbrake. This voltage is active as soon as you enter the vehicle, but also when connecting to the RF HUB as a thief. To access this voltage, follow these instructions:

1. Remove and disconnect the **USB HUB** from the vehicle.
2. Widen the 4 tabs on the back cover using small screwdrivers and tweezers, then remove the printed circuit board.
3. Drill a hole in the back plastic in the area not occupied by connectors to allow the wire, as shown in the figure, to pass through (make sure to drill a precise hole to prevent the wire from sliding too loosely; if needed, apply a drop of silicone inside at the end to provide resistance in case the wire is pulled).
4. Solder the wire to the **USB HUB** printed circuit board, at the **+5V** pin of the USB connector. You can use the reference images below to identify the correct pin to use.

### Pin Out

- ① (+) 5V
- ② Data-
- ③ Data+
- ④ (-) Gnd



Female

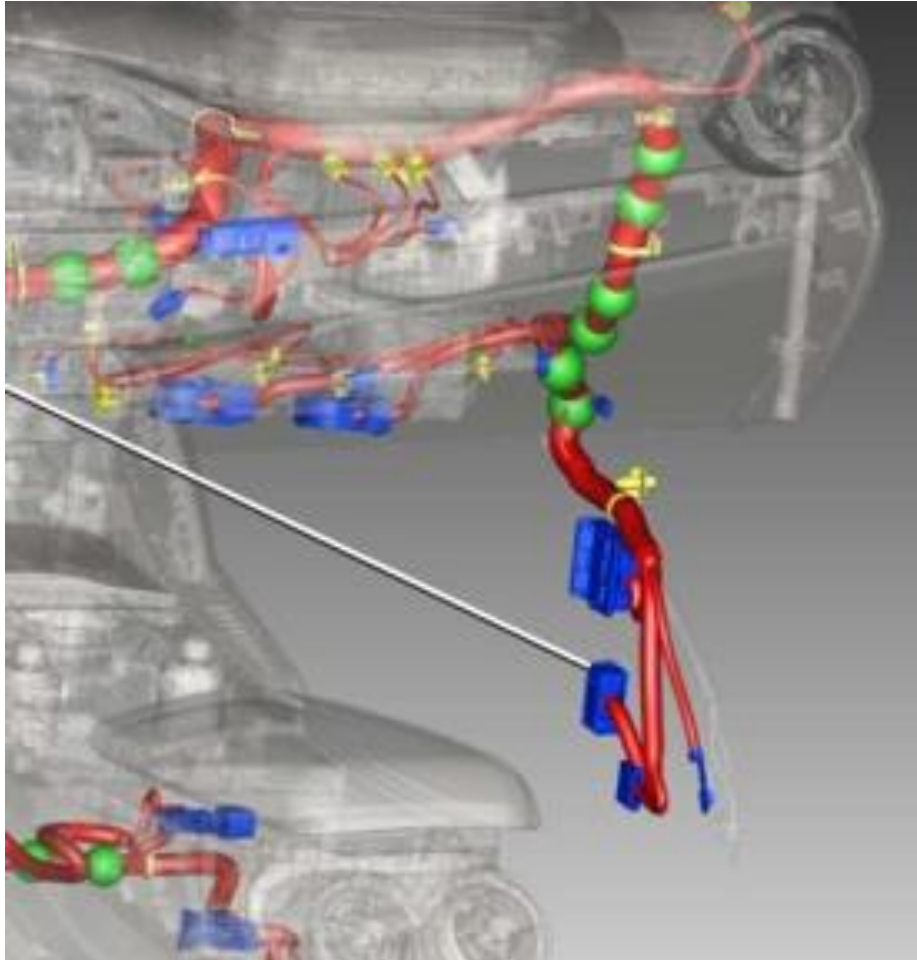
## 1.8 Notes about connections toward can bus

If the vehicle is equipped with an SGW (Secure Gateway), the pins on the OBD port cannot be used to connect the BACCABLE. Instead, it will be necessary to use an SGW bypass wiring that can be purchased online, which will provide an OBD port for the BACCABLE connection. Alternatively, you can intercept the wires of the desired CAN bus at other points in the vehicle, upstream of the SGW.



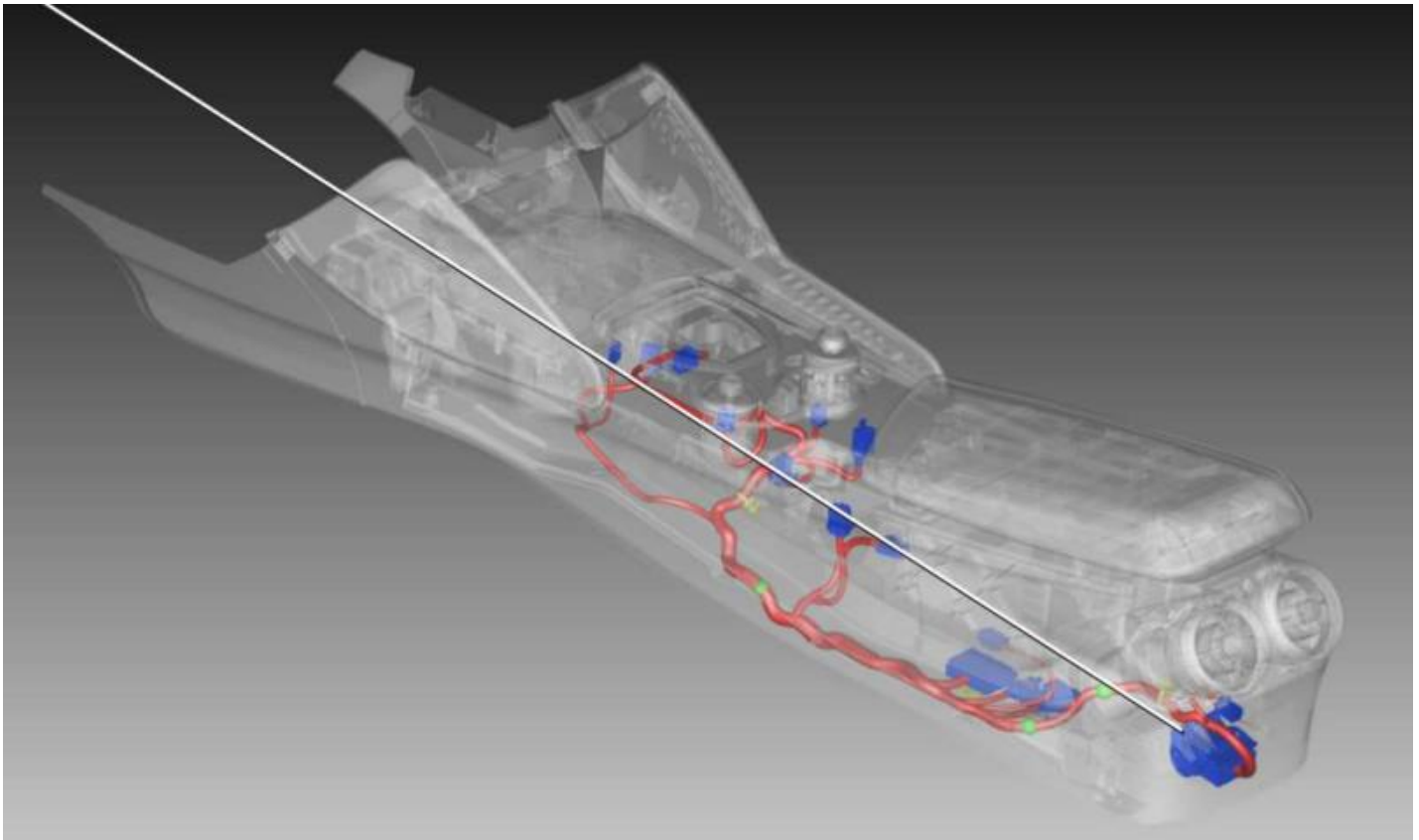
## 1.9 Connection Examples

Example 1 of a point upstream of the SGW where the C1 bus can be detected:

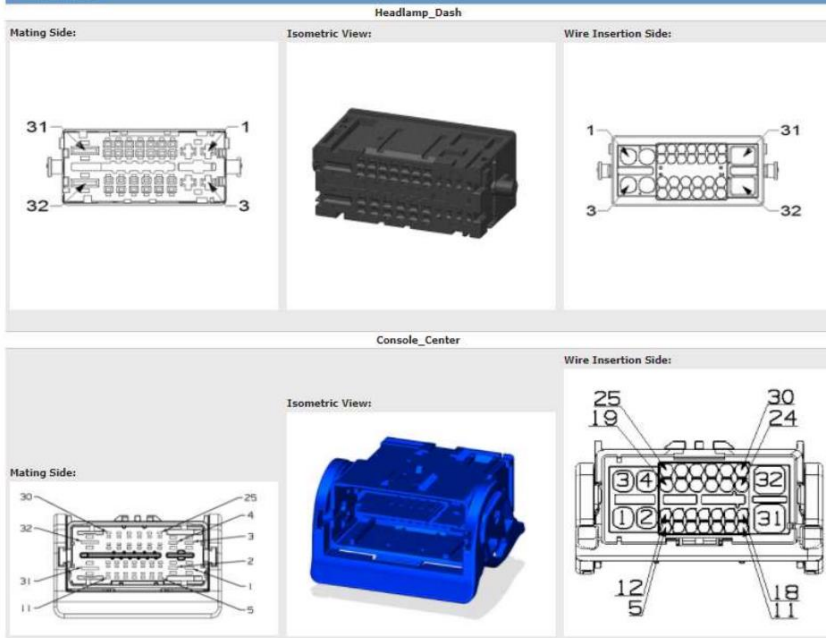


|                     |              |                        |  |   |      |   |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
|---------------------|--------------|------------------------|--|---|------|---|------|---|---------|------|-----|----|------|--|---|---------|------|------------------|---|------|------|--|---------|------|-----|----|------|--|--|---------|------|------------------|---|------|------|-------------------------|---------|------|------|------|------|--|-------------------------|---------|------|-------------------|----|------|--|-------------------------|---------|------|------|----|------|--|-------------------------|---------|------|-------------------|---|------|------|-------------------------|----|------|------|------|------|--|-------------------------|----|------|-------------------|----|------|--|-------------------------|----|------|------|----|------|--|-------------------------|----|------|-------------------|---|------|-----|-----------------------------|---------|------|--|----|-----|--|-----------------------------|---------|------|-----|----|------|-----|--------------------|---------|------|--|----|-----|--|--------------------|---------|------|-----|----|------|------|--------|---------|------|--|----|------|--|--------|---------|------|-----|----|--------------|------|--------------------------------|---------|-----|--|----|--------------|------|--------------------------------|---------|-----|--|----|------|-----|-----------|----|------|------|------|-----|--|-----------|----|------|---|----|-----|--|-----------|----|------|--|----|------|-----|-----------|----|------|------|------|-----|--|-----------|----|------|---|----|-----|--|-----------|----|------|--|
| <b>Mating Side:</b> |              | <b>Isometric View:</b> | <b>Wire Insertion Side:</b>                    |   |      |   |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
|                     |              |                        |  | <table><tr><td>5</td><td>Body</td><td>P400</td><td>RIGHT FRONT PASSIVE ENTRY HANDLE SWITCH SENSE</td><td>VT / GN</td><td>0.35</td><td>LHD</td></tr><tr><td>IP</td><td>P400</td><td></td><td>RIGHT FRONT PASSIVE ENTRY HANDLE SWITCH SENSE</td><td>VT / GN</td><td>0.35</td><td>KEYLESS IGNITION</td></tr><tr><td>6</td><td>Body</td><td>P401</td><td>RIGHT FRONT PASSIVE ENTRY HANDLE SWITCH RETURN</td><td>VE / GY</td><td>0.35</td><td>LHD</td></tr><tr><td>IP</td><td>P401</td><td></td><td>RIGHT FRONT PASSIVE ENTRY HANDLE SWITCH RETURN</td><td>VE / GY</td><td>0.35</td><td>KEYLESS IGNITION</td></tr><tr><td>7</td><td>Body</td><td>X298</td><td>RIGHT FRONT SPEAKER (-)</td><td>VT / OG</td><td>0.75</td><td>BASE</td></tr><tr><td>Body</td><td>X298</td><td></td><td>RIGHT FRONT SPEAKER (-)</td><td>VT / OG</td><td>0.75</td><td>PREMIUM/PREMIUM 2</td></tr><tr><td>IP</td><td>X298</td><td></td><td>RIGHT FRONT SPEAKER (-)</td><td>VT / OG</td><td>0.75</td><td>BASE</td></tr><tr><td>IP</td><td>X298</td><td></td><td>RIGHT FRONT SPEAKER (-)</td><td>VT / OG</td><td>0.75</td><td>PREMIUM/PREMIUM 2</td></tr><tr><td>8</td><td>Body</td><td>X208</td><td>RIGHT FRONT SPEAKER (+)</td><td>VT</td><td>0.75</td><td>BASE</td></tr><tr><td>Body</td><td>X208</td><td></td><td>RIGHT FRONT SPEAKER (+)</td><td>VT</td><td>0.75</td><td>PREMIUM/PREMIUM 2</td></tr><tr><td>IP</td><td>X208</td><td></td><td>RIGHT FRONT SPEAKER (+)</td><td>VT</td><td>0.75</td><td>BASE</td></tr><tr><td>IP</td><td>X208</td><td></td><td>RIGHT FRONT SPEAKER (+)</td><td>VT</td><td>0.75</td><td>PREMIUM/PREMIUM 2</td></tr><tr><td>9</td><td>Body</td><td>G12</td><td>DOOR LOCK/UNLOCK LED DRIVER</td><td>GV / RD</td><td>0.35</td><td></td></tr><tr><td>IP</td><td>G12</td><td></td><td>DOOR LOCK/UNLOCK LED DRIVER</td><td>GV / RD</td><td>0.35</td><td>LHD</td></tr><tr><td>10</td><td>Body</td><td>E16</td><td>PANEL LAMPS DRIVER</td><td>GV / RD</td><td>0.35</td><td></td></tr><tr><td>IP</td><td>E16</td><td></td><td>PANEL LAMPS DRIVER</td><td>GV / RD</td><td>0.35</td><td>LHD</td></tr><tr><td>11</td><td>Body</td><td>Z904</td><td>GROUND</td><td>WH / OG</td><td>0.35</td><td></td></tr><tr><td>IP</td><td>Z904</td><td></td><td>GROUND</td><td>WH / OG</td><td>0.35</td><td>LHD</td></tr><tr><td>12</td><td>All Variants</td><td>D923</td><td>PASSIVE ENTRY ANTENNA 2 RETURN</td><td>WH / DB</td><td>0.5</td><td></td></tr><tr><td>13</td><td>All Variants</td><td>D922</td><td>PASSIVE ENTRY ANTENNA 2 SIGNAL</td><td>WH / BK</td><td>0.5</td><td></td></tr><tr><td>14</td><td>Body</td><td>D12</td><td>CAN C (-)</td><td>BN</td><td>0.35</td><td>BASE</td></tr><tr><td>Body</td><td>D12</td><td></td><td>CAN C (-)</td><td>BN</td><td>0.35</td><td>STABILITY CONTROL/ELECTRONIC DIFFERENTIAL EXCEPT 2.2L EU6</td></tr><tr><td>IP</td><td>D12</td><td></td><td>CAN C (-)</td><td>BN</td><td>0.35</td><td></td></tr><tr><td>15</td><td>Body</td><td>D11</td><td>CAN C (+)</td><td>GN</td><td>0.35</td><td>BASE</td></tr><tr><td>Body</td><td>D11</td><td></td><td>CAN C (+)</td><td>GN</td><td>0.35</td><td>STABILITY CONTROL/ELECTRONIC DIFFERENTIAL EXCEPT 2.2L EU6</td></tr><tr><td>IP</td><td>D11</td><td></td><td>CAN C (+)</td><td>GN</td><td>0.35</td><td></td></tr></table> | 5    | Body  | P400 | RIGHT FRONT PASSIVE ENTRY HANDLE SWITCH SENSE | VT / GN | 0.35 | LHD | IP | P400 |  | RIGHT FRONT PASSIVE ENTRY HANDLE SWITCH SENSE | VT / GN | 0.35 | KEYLESS IGNITION | 6 | Body | P401 | RIGHT FRONT PASSIVE ENTRY HANDLE SWITCH RETURN | VE / GY | 0.35 | LHD | IP | P401 |  | RIGHT FRONT PASSIVE ENTRY HANDLE SWITCH RETURN | VE / GY | 0.35 | KEYLESS IGNITION | 7 | Body | X298 | RIGHT FRONT SPEAKER (-) | VT / OG | 0.75 | BASE | Body | X298 |  | RIGHT FRONT SPEAKER (-) | VT / OG | 0.75 | PREMIUM/PREMIUM 2 | IP | X298 |  | RIGHT FRONT SPEAKER (-) | VT / OG | 0.75 | BASE | IP | X298 |  | RIGHT FRONT SPEAKER (-) | VT / OG | 0.75 | PREMIUM/PREMIUM 2 | 8 | Body | X208 | RIGHT FRONT SPEAKER (+) | VT | 0.75 | BASE | Body | X208 |  | RIGHT FRONT SPEAKER (+) | VT | 0.75 | PREMIUM/PREMIUM 2 | IP | X208 |  | RIGHT FRONT SPEAKER (+) | VT | 0.75 | BASE | IP | X208 |  | RIGHT FRONT SPEAKER (+) | VT | 0.75 | PREMIUM/PREMIUM 2 | 9 | Body | G12 | DOOR LOCK/UNLOCK LED DRIVER | GV / RD | 0.35 |  | IP | G12 |  | DOOR LOCK/UNLOCK LED DRIVER | GV / RD | 0.35 | LHD | 10 | Body | E16 | PANEL LAMPS DRIVER | GV / RD | 0.35 |  | IP | E16 |  | PANEL LAMPS DRIVER | GV / RD | 0.35 | LHD | 11 | Body | Z904 | GROUND | WH / OG | 0.35 |  | IP | Z904 |  | GROUND | WH / OG | 0.35 | LHD | 12 | All Variants | D923 | PASSIVE ENTRY ANTENNA 2 RETURN | WH / DB | 0.5 |  | 13 | All Variants | D922 | PASSIVE ENTRY ANTENNA 2 SIGNAL | WH / BK | 0.5 |  | 14 | Body | D12 | CAN C (-) | BN | 0.35 | BASE | Body | D12 |  | CAN C (-) | BN | 0.35 | STABILITY CONTROL/ELECTRONIC DIFFERENTIAL EXCEPT 2.2L EU6 | IP | D12 |  | CAN C (-) | BN | 0.35 |  | 15 | Body | D11 | CAN C (+) | GN | 0.35 | BASE | Body | D11 |  | CAN C (+) | GN | 0.35 | STABILITY CONTROL/ELECTRONIC DIFFERENTIAL EXCEPT 2.2L EU6 | IP | D11 |  | CAN C (+) | GN | 0.35 |  |
| 5                   | Body         | P400                   | RIGHT FRONT PASSIVE ENTRY HANDLE SWITCH SENSE  | VT / GN   | 0.35 | LHD   |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| IP                  | P400         |                        | RIGHT FRONT PASSIVE ENTRY HANDLE SWITCH SENSE  | VT / GN   | 0.35 | KEYLESS IGNITION  |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| 6                   | Body         | P401                   | RIGHT FRONT PASSIVE ENTRY HANDLE SWITCH RETURN | VE / GY   | 0.35 | LHD   |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| IP                  | P401         |                        | RIGHT FRONT PASSIVE ENTRY HANDLE SWITCH RETURN | VE / GY   | 0.35 | KEYLESS IGNITION  |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| 7                   | Body         | X298                   | RIGHT FRONT SPEAKER (-)                        | VT / OG   | 0.75 | BASE  |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| Body                | X298         |                        | RIGHT FRONT SPEAKER (-)                        | VT / OG   | 0.75 | PREMIUM/PREMIUM 2   |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| IP                  | X298         |                        | RIGHT FRONT SPEAKER (-)                        | VT / OG   | 0.75 | BASE  |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| IP                  | X298         |                        | RIGHT FRONT SPEAKER (-)                        | VT / OG   | 0.75 | PREMIUM/PREMIUM 2   |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| 8                   | Body         | X208                   | RIGHT FRONT SPEAKER (+)                        | VT  | 0.75 | BASE  |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| Body                | X208         |                        | RIGHT FRONT SPEAKER (+)                        | VT  | 0.75 | PREMIUM/PREMIUM 2   |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| IP                  | X208         |                        | RIGHT FRONT SPEAKER (+)                        | VT  | 0.75 | BASE  |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| IP                  | X208         |                        | RIGHT FRONT SPEAKER (+)                        | VT  | 0.75 | PREMIUM/PREMIUM 2   |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| 9                   | Body         | G12                    | DOOR LOCK/UNLOCK LED DRIVER                    | GV / RD   | 0.35 |   |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| IP                  | G12          |                        | DOOR LOCK/UNLOCK LED DRIVER                    | GV / RD   | 0.35 | LHD   |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| 10                  | Body         | E16                    | PANEL LAMPS DRIVER                             | GV / RD   | 0.35 |   |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| IP                  | E16          |                        | PANEL LAMPS DRIVER                             | GV / RD   | 0.35 | LHD   |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| 11                  | Body         | Z904                   | GROUND   | WH / OG   | 0.35 |   |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| IP                  | Z904         |                        | GROUND   | WH / OG   | 0.35 | LHD   |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| 12                  | All Variants | D923                   | PASSIVE ENTRY ANTENNA 2 RETURN                 | WH / DB   | 0.5  |   |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| 13                  | All Variants | D922                   | PASSIVE ENTRY ANTENNA 2 SIGNAL                 | WH / BK   | 0.5  |   |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| 14                  | Body         | D12                    | CAN C (-)                                      | BN  | 0.35 | BASE  |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| Body                | D12          |                        | CAN C (-)                                      | BN  | 0.35 | STABILITY CONTROL/ELECTRONIC DIFFERENTIAL EXCEPT 2.2L EU6 |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| IP                  | D12          |                        | CAN C (-)                                      | BN  | 0.35 |   |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| 15                  | Body         | D11                    | CAN C (+)                                      | GN  | 0.35 | BASE  |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| Body                | D11          |                        | CAN C (+)                                      | GN  | 0.35 | STABILITY CONTROL/ELECTRONIC DIFFERENTIAL EXCEPT 2.2L EU6 |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| IP                  | D11          |                        | CAN C (+)                                      | GN  | 0.35 |   |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
| <b>Mating Side:</b> |              | <b>Isometric View:</b> | <b>Wire Insertion Side:</b>                    |   |      |   |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |
|                     |              |                        |  |   |      |   |      |   |         |      |     |    |      |  |   |         |      |                  |   |      |      |  |         |      |     |    |      |  |  |         |      |                  |   |      |      |                         |         |      |      |      |      |  |                         |         |      |                   |    |      |  |                         |         |      |      |    |      |  |                         |         |      |                   |   |      |      |                         |    |      |      |      |      |  |                         |    |      |                   |    |      |  |                         |    |      |      |    |      |  |                         |    |      |                   |   |      |     |                             |         |      |  |    |     |  |                             |         |      |     |    |      |     |                    |         |      |  |    |     |  |                    |         |      |     |    |      |      |        |         |      |  |    |      |  |        |         |      |     |    |              |      |                                |         |     |  |    |              |      |                                |         |     |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |    |      |     |           |    |      |      |      |     |  |           |    |      |   |    |     |  |           |    |      |  |

Example 2 of a point upstream of the SGW where the C1 bus can be detected:



#### Connector Views



|                   |      |                                   |         |      |           |
|-------------------|------|-----------------------------------|---------|------|-----------|
| Headlamp_Dash     | B68  | EPB SWITCH POSITION 3 SIGNAL      | VT / DB | 0.35 | LHD       |
| 9 Console_Center  | D11  | CAN C (+)                         | GN      | 0.35 | ATX       |
| Headlamp_Dash     | D11  | CAN C (+)                         | GN      | 0.35 | 2.0L/2.2L |
| Headlamp_Dash     | D11  | CAN C (+)                         | GN      | 0.35 | 2.9L      |
| 10 Console_Center | D12  | CAN C (-)                         | BN      | 0.35 | ATX       |
| Headlamp_Dash     | D12  | CAN C (-)                         | BN      | 0.35 | 2.0L/2.2L |
| Headlamp_Dash     | D12  | CAN C (-)                         | BN      | 0.35 | 2.9L      |
| 11 Console_Center | D11  | CAN C (+)                         | GN      | 0.35 | ATX       |
| Headlamp_Dash     | D11  | CAN C (+)                         | GN      | 0.35 |           |
| 12 Console_Center | D12  | CAN C (-)                         | BN      | 0.35 | ATX       |
| Headlamp_Dash     | D12  | CAN C (-)                         | BN      | 0.35 |           |
| 13 Console_Center | M108 | AMBIENT LIGHTING CONTROL          | VE / GN | 0.5  | PREMIUM   |
| Headlamp_Dash     | M108 | AMBIENT LIGHTING CONTROL          | VE / GN | 0.35 | PREMIUM   |
| 14 Console_Center | Z101 | GROUND                            | BK      | 0.5  | PREMIUM   |
| Headlamp_Dash     | Z101 | GROUND                            | BK      | 0.35 | PREMIUM   |
| 15 Console_Center | F741 | IGNITION RUN/START OUTPUT         | DB / RD | 0.5  | ATX       |
| Headlamp_Dash     | F741 | IGNITION RUN/START OUTPUT         | DB / RD | 0.5  |           |
| 16 Console_Center | B71  | EPB SWITCH POSITION 6 SIGNAL      | VT / GN | 0.35 | LHD       |
| Console_Center    | B71  | EPB SWITCH POSITION 6 SIGNAL      | VT / GN | 0.35 | RHD       |
| Headlamp_Dash     | B71  | EPB SWITCH POSITION 6 SIGNAL      | VT / GN | 0.35 | LHD       |
| 17 Console_Center | B70  | EPB SWITCH POSITION 5 SIGNAL      | VT / RD | 0.35 | LHD       |
| Console_Center    | B70  | EPB SWITCH POSITION 5 SIGNAL      | VT / RD | 0.35 | RHD       |
| Headlamp_Dash     | B70  | EPB SWITCH POSITION 5 SIGNAL      | VT / RD | 0.35 | LHD       |
| 18 Console_Center | G63  | EPB INDICATOR SIGNAL              | GN / OG | 0.35 | LHD       |
| Console_Center    | G63  | EPB INDICATOR SIGNAL              | GN / OG | 0.35 | RHD       |
| Headlamp_Dash     | G63  | EPB INDICATOR SIGNAL              | GN / OG | 0.35 | LHD       |
| 19 Console_Center | A901 | FUSED B(+)                        | RD / GN | 0.5  | LHD       |
| Console_Center    | A901 | FUSED B(+)                        | RD / GN | 0.5  | RHD       |
| Headlamp_Dash     | A901 | FUSED B(+)                        | RD / GN | 0.5  |           |
| 20 Console_Center | A901 | FUSED B(+)                        | RD / YE | 0.75 | ATX       |
| Headlamp_Dash     | A901 | FUSED B(+)                        | RD / BN | 0.75 | ATX       |
| 22 Console_Center | F741 | IGNITION RUN/START OUTPUT         | DB / GN | 0.35 | LHD       |
| Console_Center    | F741 | IGNITION RUN/START OUTPUT         | DB / GN | 0.35 | RHD       |
| Headlamp_Dash     | F741 | IGNITION RUN/START OUTPUT         | DB / GN | 0.35 |           |
| 25 All Variants   | E3   | PANEL LAMPS DIMMER SWITCH MUX     | YE      | 0.5  |           |
| 26 All Variants   | Z136 | GROUND                            | BK / YE | 0.75 | ATX       |
| 27 Console_Center | Z103 | GROUND                            | BK      | 0.5  | LHD       |
| Console_Center    | Z103 | GROUND                            | BK      | 0.5  | RHD       |
| Headlamp_Dash     | Z103 | GROUND                            | BK      | 0.5  |           |
| 29 Console_Center | F814 | FUSED POWER OUTLET RELAY OUTPUT 1 | DB      | 0.5  | REAR USB  |
| Headlamp_Dash     | F814 | FUSED POWER OUTLET RELAY OUTPUT 1 | DB      | 0.5  |           |

### Example 3 of a point upstream of the SGW:

In the case of an automatic transmission, the following excerpt from the manual can be used, along with the pinout of the transmission connector:

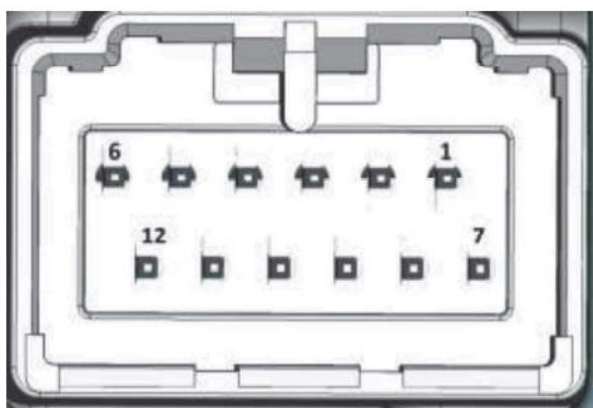
#### Sensore della posizione della leva selettoria

Il sensore integrato nella centralina della leva selettoria rileva il movimento e la posizione della leva selettoria; queste informazioni vengono inviate alla centralina del cambio TCM.

Basandosi su queste informazioni la centralina del cambio TCM determina la condizione del cambio (P, R, N, D, TIP) e la invia alla centralina della leva selettoria AGSM.

In base a questi dati vengono comandate le strategie di funzionamento della leva ed il dispositivo di visualizzazione nella parte superiore della leva selettoria

Pin out centralina AGSM



| Pin | Funzione |
|-----|----------|
| 1   | KL30     |
| 2   | KL15     |
| 4   | C-Can1 H |
| 5   | C-Can1 L |
| 10  | Massa    |
| 11  | C-Can1 H |
| 12  | C-Can1 L |

## 1.10 TECHNICAL CHARACTERISTICS

**Dimensions:** 57.5mm (width) x 44.5mm (height) x 22mm (depth)

**Weight:** less than 50 grams

**Power supply voltage:** 4.5V - 35V (DC)

**Current consumption @12V:** approximately 11mA with vehicle off in sleep mode. Less than 30mA during operation with vehicle on.

## 2. USAGE

### 2.1 First Startup

When using the BACCABLE for the first time, you need to set up the functions you wish to activate on your vehicle, from among those available, by following the instructions below:

1. Insert the BACCABLE into the OBD connector.
2. Start the engine.
3. With cruise control disabled, press the RES button (or the DISTANCE button) on the steering wheel for about 2 seconds. The display where the radio station name is usually shown will display the text *BACCABLE* along with the installed version identifier.
4. Navigate the circular scrolling menu using the up and down buttons until you reach the item *SETUP MENU*.
5. Press and immediately release the RES button (or the DISTANCE button) to enter the *SETUP* menu. The text *SAVE & EXIT* will be displayed.
6. Navigate through the circular scrolling menu using the up and down buttons to scroll through the list of available functions. The symbol **O** to the left indicates that the function is deselected, while the symbol **Ø** indicates that the function is selected. The functions are described in this chapter and its subchapters.

**Note 1:** An exception is the engine RPM threshold for the shift function, which is detailed in paragraph 2.6, and the DIESEL/GASOLINE selection, which is detailed in paragraph 2.7.

7. Press and immediately release the RES button (or the DISTANCE button) to select or deselect the displayed function.
8. After scrolling through the entire list of functions and enabling all desired features, you will return to the *SAVE & EXIT* item. Press and immediately release the RES button (or the DISTANCE button) on the steering wheel to permanently save the selected settings and return to the main menu.

**Note 2:** The items shown in the main menu depend on the settings made within the *SETUP MENU*, which you can access at any time.

9. About 40 seconds after turning off the engine, the menu will automatically be disabled. To display it again, press the RES button (or the DISTANCE button) for about 2 seconds.
10. In case the vehicle is restarted, the menu will be shown again on the last displayed page before shutdown.

**WARNING:** The *SETUP* menu includes two features currently under development which should not be enabled: **REMOTE START** and **READ FAULTS**

## 2.2 Sniffer

**Brief description:** Act as a sniffer, connected to a Personal Computer

**Note:** The use of this function requires reprogramming the BACCABLE. It is not a function that can be enabled or disabled from the SETUP MENU.

1. Each USB corresponds to a specific can Bus. Reading the BACCABLE name on the case, from left to right you have BH, C2 and C1 bus.
2. Plug usb cable from desired USB bus to the PC (with windows operative System).
3. Open SavvyCan (link to the SavvyCan opensource project is available in Baccable Repository in Github)
4. From top menu "Connection", select "Open Connection Window"
5. From window "Connection Settings" press button "Add new Device Connection"
6. From "New connection" window, select option "LAWICEL/SLCAN"
7. From "New connection" window, select from drop down menu serial the com port where the Baccable was found (you can check device manager to see which virtual COM serial port is associated to BACCABLE , revealed as ST device)
8. From "New connection" window, Leave Serial port speed as default (115000bps)
9. From "New connection" window, Set Can bus speed according to the speed of the desired bus (500000bps for C1 and C2, or 125000bps for BH bus)
10. From "New connection" window, press button "create new connection"
11. Close "connection settings" window
12. If ECUs vehicle are communicating, you will see related messages in the main window of SavvyCan.
13. On the right side of the window it is possible to stop and clear capture, on the bottom right side of the window it is possible to filter shown messages
14. From top menu file, you can select Save Log File or Load Log File to save current recording or to open previously recorded messages.
15. From bottom central part of the main window you can send messages to the can bus (detailed instructions in SavvyCan repository)
16. From menu RE TOOLS you can select sniffer to reach a window where you can analyze changing bytes upon specific events.

## 2.3 Start&Stop disabler

**Brief description:** Disable start&stop, if engine rotates and if start & stop is not disabled. This is a function that can be enabled and disabled from the SETUP MENU described in paragraph 2.1.

No additional instruction is required



## 2.4 Immobilizer

**Brief description:** Act as immobilizer. If a connection to the RFHUB is detected, it resets the connection, preventing the addition of a key, disables the ignition, and triggers the panic alarm (if activated on the proxy). The immobilizer can be permanently deactivated and reactivated by pressing the cruise control button upwards for 30 seconds with the engine running and the cruise control deactivated. The dashboard will flash 5-6 times if the immobilizer was successfully deactivated, and 3 times if it was successfully reactivated.

The functionality IMMOBILIZER performs the following:

1. Detects if the thief is trying to connect to RFHUB (they do it to add a key to the car)
2. Starts the Panic Alarm after one second
3. Continuously Resets the RFHUB in order to reset the thief connection, with this message for 10 seconds
4. after 10 seconds stops to send messages and stops alarm, and return listening for thief messages

Panic alarm will start only if you previously enabled panic alarm in your ECU, with the MES proxy alignment procedure.

The Immobilizer functionality will not detect the thief if you power the BACCable with a voltage available only when the panel is switched on. Therefore, if you use immobilizer function, plug it to OBD port 12V, or directly plug the cable to the 5V usb voltage taken from the connector of the USB interface in the central area, close to cigarette lighter socket. In fact, usb voltage is switched on as soon as the thief wakes up the rfhub.

Once we start to send the rfhub reset message, neither the injection button will work. the car will appear as dead.

Immobilizer at the beginning is enabled by default. To permanently toggle the status you shall be with motor on, cruise control disabled, neutral gear, press cruise control gentle speed up for around 30 seconds. If the immo becomes disabled, it will be blink the dashboard brightness for 5-6 times. If immo becomes activates, the dashboard will blink 3 times. The change is persistent after a power loss. The current status of the Immobilizer is also displayed in the main menu of the BACCABLE with the text "IMMOBILIZER ON" or "IMMOBILIZER OFF".

When you plug the power to BACCABLE (or if you plug baccable), if immobilizer is enabled, the blue led on BACCABLE will blink twice and the dashboard will blink once. This is useful to understand how the immobilizer is set.

To verify the correct functionality of the immobilizer, it is possible to simulate a theft attempt by connecting to the RF HUB using an ELM327 and the AlfaOBD smartphone app or the Multiecuscan application on a PC. Upon attempting to connect to the RF HUB, the ignition will no longer be possible, and the PANIC ALARM will activate, producing a periodic sound from the horn.

**DON'T PANIC:** simply disconnect the ELM327, wait 30 seconds, and BACCABLE will stop the panic alarm. In general, remember that by starting the vehicle, engaging gear, and driving, even at very low speeds, the panic alarm is automatically stopped by the vehicle's ECU.

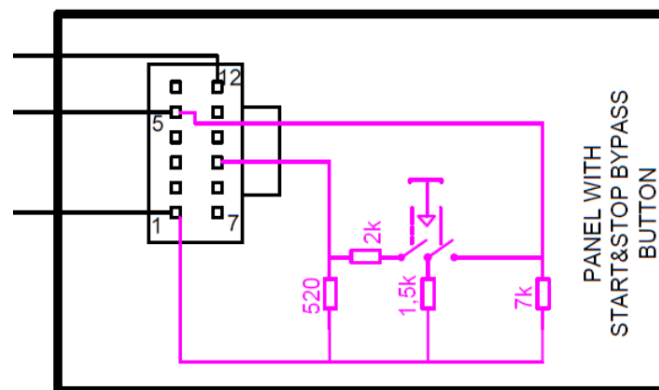
## 2.5 Led Strip Controller

**Brief description:** Controls a **WS281x** LED strip according to the accelerator pedal position (requires connecting pin 8 to the LED strip (optional), while the power supply for the LED strip must be sourced from a voltage that is absent when the vehicle is off). Each gear is associated with a specific color pattern of the strip. Leds are lighted like a vumeter according to accelerator pedal press. With accelerator released, only central leds are lighted. The strip led is controlled assuming that central tunnel of the car is rounded by leds. Therefore central part of the leds strip is on the rear part of the central tunnel.

**Note:** This is a function that can be enabled and disabled from the SETUP MENU described in paragraph 2.1.

1. Connect pin 8 to control pin of the leds strip
2. Connect the + and – of the led strip to the desired voltage (5V or 12V of the car) ensuring it is a voltage cutted when the car goes to sleep in order to avoid battery drain. The number of leds in the strip shall correspond to the configured leds number in the firmware.

Example of voltage available only when car is on, therefore suitable for leds strip, is pin 12 (+12V) and 1 (GND) of the connector related to Start&Stop and lights panel.



Connector related to Start&Stop and lights panel

## 2.6 Shift

**Brief description:** Shows, in race mode, the shift indicator in the dashboard (request to switch gear), when the defined engine RPM speed threshold is overcome. The threshold is stored in the BACCABLE firmware.

**Note:** This is a function that can be enabled and disabled via the SETUP MENU described in paragraph 2.1. The engine RPM threshold can be modified by accessing the SETUP menu as indicated in paragraph 2.1. Each time the RES button (or DISTANCE button) is pressed, the threshold changes in a rotating menu.

No further instructions are required.

See also the following paragraph.

## 2.7 My23 IPC

**Brief description:** Allows, on MY23 dashboards and later versions, the correct display of the SHIFT function described in the previous paragraph.

**Note:** This is a function that can be enabled and disabled via the SETUP MENU described in paragraph 2.1

## 2.8 Params On Dashboard

**Brief description:** Shows additional parameters on the dashboard. It can be enabled with the Cruise Control RES button (or DISTANCE button), if the engine is on and the cruise control is deactivated. Navigate through the menu using the Cruise Control UP and Cruise Control DOWN buttons, and disable the controls when cruise control is activated

**Note:** From the SETUP MENU described in paragraph 2.1, it is possible to choose whether to set the parameters for a GASOLINE or DIESEL engine.

Usage procedure:

1. By default, the dashboard menu is disabled.
2. To enable it, the engine must be running and cruise control must be deactivated. Press the RES button (or DISTANCE button) on the steering wheel for about 2 seconds, and the menu will display the BACCABLE version on the dashboard screen where the radio station name is usually shown.
3. To navigate the rotating menu, use the cruise control up and down buttons. When you reach the *SHOW PARAMS* item, press and immediately release the RES button (or DISTANCE button) on the steering wheel to access the SHOW PARAMS menu, where the parameters will be displayed.
4. To scroll through the menu, use the cruise control up and down buttons (press lightly to move by 1 parameter, press firmly to move by 10 parameters) in a circular menu.



5. When cruise control is enabled, the menu controls are disabled, but the last selected parameter remains on screen and continues to update.
6. Parameters are updated every 500 milliseconds.
7. To return to the main menu, press and immediately release the RES button (or DISTANCE button) on the steering wheel. The *SHOW PARAMS* item of the main menu will be displayed.
8. To disable the menu, with cruise control deactivated, press the RES button (or DISTANCE button) for about 2 seconds.
9. Upon restarting the vehicle, the last parameter displayed before shutdown will automatically appear.

**Known issues:** It may rarely occur that the radio or Bluetooth devices send text to the dashboard in a way that temporarily freezes the string populated by BACCABLE. In such cases, try disabling and re-enabling the menu using the RES (or DISTANCE) button, or switch the dashboard screen using the right stalk button (TRIP), or perform a vehicle power cycle.

Next pages show available parameters for gasoline engines (first table) and diesel engines (second table):

| GASOLINE PARAMETERS |      |  |
|---------------------|------|--|
| PARAMETER           | Unit | Description  |
| POWER               | CV   | Power  |
| TORQUE              | Nm   | Torque   |
| IC AIR OUT          | °C   | Intercooler output air temperature   |
| IC AIR IN           | °C   | Intercooler input air temperature  |
| BOOST ABS           | BAR  | Absolute Pressure  |
| BOOST               | BAR  | Turbo pressure, obtained from absolute pressure  |
| TURBO               | V    | Turbo Sensor Voltage   |
| ODOMETER LAST       | km   | km since last odometer reset   |
| OIL                 | L    | Oil Quantity   |
| OIL                 | BAR  | Oil Pressure   |
| OIL                 | °C   | Oil Temperature  |
| OIL QUALITY         | %    | Oil Quality  |
| OIL UN. AIR         | °C   | Multiair module Oil temperature  |
| GEARBOX             | °C   | Gearbox temperature  |
| BATTERY             | %    | Battery charge percentage  |
| BATTERY             | A    | Battery charging current (positive values mean charge, negative values mean discharge) |
| BATTERY             | V    | Battery voltage  |
| AIR COND.           | BAR  | Air conditioner pressure   |
| CUR. GEAR           | -    | Current gear   |
| T-ON                | m    | Time since engine On   |
| OVER RPM            | s    | Time in which engine was in overrun  |
| EXHAUST GAS         | °C   | Exhaust gas temperature  |
| CATAL.              | °C   | Catalytic Converter Probe Temperature  |
| WATER               | °C   | Engine Coolant Temperature   |
| KNOCK               | mV   | Engine Knocking  |
| KEY IGN.            | -    | Ignition key ID  |
| OVER RPM            | -    | Number of engine over-rev occurrences  |
| SPARKL.1            | °    | Cylinder 1 correction  |
| SPARKL.2            | °    | Cylinder 2 correction  |
| SPARKL.3            | °    | Cylinder 3 correction  |
| SPARKL.4            | °    | Cylinder 4 correction  |
| R-DNA               | -    | R-DNA/DNA selector position  |
| SPEED               | km/h | speed  |

| DIESEL PARAMETERS |      |   |
|-------------------|------|---|
| PARAMETER         | Unit | Description   |
| POWER             | CV   | power   |
| TORQUE            | Nm   | Torque  |
| DPF               | %    | DPF occlusion percentage  |
| DPF               | °C   | DPF temperature   |
| DPF REGEN.        | %    | DPF regeneration process percentage   |
| LAST REGEN.       | km   | km since last regeneration  |
| TOT REGEN.        | -    | Total number of regenerations   |
| MEAN REGEN.       | km   | Mean distance of regenerations  |
| MEAN REGEN.       | min  | Mean time of regenerations  |
| REGEN.            | -    | Type of regeneration in progress  |
| BATT.             | V    | Battery voltage   |
| BATT.             | %    | Battery recharge percentage   |
| BATT.             | A    | Battery charge current (positive values mean in charge, negative values mean discharge) |
| OIL QUALITY       | %    | Oil quality   |
| OIL               | °C   | Oil Temperature   |
| OIL               | BAR  | Oil Pressure  |
| CUR. GEAR         | -    | Current gear  |
| WATER             | °C   | Water temperature   |
| EGR CMD           | %    | EGR valve command   |
| EGR               | %    | EGR valve status  |
| TURBO REQ.        | BAR  | Turbo pressure request  |
| TURBO REQ.        | %    | Turbo request percentage  |
| TURBO             | °C   | Turbo temperature   |
| TURBO             | BAR  | Turbo Pressure  |
| TURBO             | %    | Turbo Percentage  |
| BOOST REQ.        | BAR  | Boost request pressure  |
| BOOST             | V    | Boost sensor voltage  |
| RAIL              | BAR  | Rail pressure   |
| DIESEL            | °C   | Diesel temperature  |
| ODOM. LAST        | km   | km since last odometer reset  |
| AIR COND.         | BAR  | Air conditioner pressure  |
| FUEL CONS.        | L./h | Diesel consume  |
| DEBIMETER         | °C   | Debimeter temperature   |
| SPEED             | km/h | Speed   |

## 2.9 Route

**Brief description:** Redirect the internal CAN bus messages to OBD peripherals that asks for a specific parameter. This allows displaying parameters on a smartphone that are normally not accessible using just the ELM327.

**Note:** This is a function that can be enabled and disabled via the SETUP MENU described in paragraph 2.1

You can route native messages encapsulating them in uds parameter response, in order to make them available to diagnostic requests performed with OBD (you can get parameters commonly not available in OBD apps). This functionality performs the following: Upon receive of UDS request with message id 0x18DABAF1 having message data 0622xzyyyyyyyy, Baccable will understand the following:

- 0x18DABAF1 identifies that the message is a Route request (request to route a native message to the diagnostic)
- The route is done just one time (one packet) to avoid bus flood, and it routes only 5 bytes of the requested message
- x (first nibble of third byte of the can message) can be 0 (std Id) or 1 (Ext Id).
- z (second nibble of third byte of the can message) is the offset of the message to route. the number of bytes routed will be only 5. offset will set the part of the message to route
- yyyyyyyy is the requested msg id right aligned.

### Example1:

Diagnostic sends msgID 0x18DABAF1 with data 062201000004B2

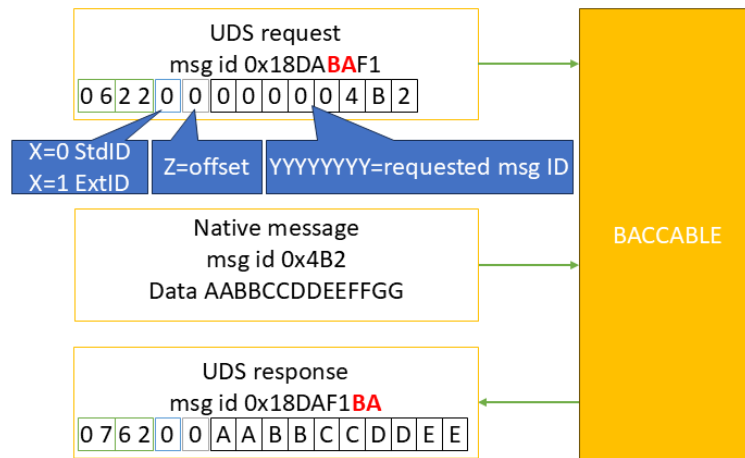
BACCABLE replies msgID 0x18DAF1BA with data 076201AABBCCDDEE where AA is the second byte of the original 0x4b2 message

### Example2:

Diagnostic sends msgID 0x18DABAF1 with data 062210E10204B2

BACCABLE replies msgID 0x18DAF1BA with data 076210AABBCCDDEE where AA is the first byte of the original 0xE10204B2 message

The following image summarizes the route functionality:



**Route messages handshake sequence**

## 2.10 ESC+TC Selector

**Brief description:** Enables and disables, if the race mode was previously enabled with a proxy alignment procedure, the ESC (Electronic Stability Control) and TC (Traction Control). It is activated by pressing the button on the left lever (Lane) for at least 2-3 seconds. When activated, the “ESC OFF” indicator and the collision avoidance disabled icon will be shown on the dashboard.

Alternatively, this function can be enabled or disabled from the main menu of the BACCABLE by scrolling through the list and pressing RES (or the DISTANCE button) on the “TOGGLE ESC/TC” item, if it has been previously enabled in the SETUP MENU as described in section 2.1.

**Note:** This is a function that can be enabled or disabled from the SETUP MENU as detailed in section 2.1.

No further instructions are required.

## 2.11 DYNO

**Brief description:** Disables all controls (included ABS, ESC, TC...). This works on stock Giulia/Stelvio too.

**Note:** This is a function that can be enabled or disabled from the SETUP MENU as detailed in section 2.1.

1. The function is activated and deactivated by pressing the PARK button for a few seconds.
2. Alternatively, this function can be enabled or disabled from the main menu of the BACCABLE by scrolling through the list and pressing RES (or the DISTANCE button) on the "TOGGLE DYNO" item, if it has been previously enabled in the SETUP MENU as described in section 2.1.
3. Once activated, a sequence of alerts will be displayed on the dashboard, indicating that the function is active.
4. Pressing the PARK button again, turning off the vehicle, or selecting "TOGGLE DYNO" from the menu will deactivate the function, and the alerts will disappear from the dashboard.

**Warning:** This function should only be activated or deactivated when the vehicle is stationary.

**Known issues:** On some Giulia/Stelvio models, it may occasionally happen that some faults remain displayed on the dashboard after deactivating the function. In such cases, perform a vehicle ignition cycle, or select the **CLEAR FAULT** function as described in section 2.13.

**Note:** You can quickly scroll through the dashboard alerts by pressing the **TRIP** button on the right-hand stalk.

## 2.12 ACC Virtual Pad

**Brief description:** Detects the button presses on the Cruise Control keypad, replacing them with those of the Adaptive Cruise Control (ACC) keypad. This eliminates the need to purchase the ACC keypad on the steering wheel. It is dependent on performing a proxy alignment to enable ACC and disable CC

**Note:** This is a function that can be enabled or disabled from the SETUP MENU, as described in section 2.1.

Pressing the Cruise Control button will activate or deactivate the Adaptive Cruise Control.

Pressing the RES button while Adaptive Cruise Control is active will change the distance from the vehicle ahead.

**Warning:** A proxy alignment must first be performed to enable Adaptive Cruise Control and disable standard Cruise Control, in the same way as required when replacing the standard Cruise Control button panel with the ACC version. The vehicle must, of course, be properly equipped (presence of a front radar with compatible ECU firmware and automatic transmission).

## 2.13 CLEAR FAULTS

**Brief description:** Clears all error codes, if present, from all the vehicle's ECUs (across all 3 CAN buses).

**Note:** This is a function that can be enabled or disabled from the SETUP MENU, as described in section 2.1.

Once this function is enabled, the CLEAR FAULTS option will appear in the BACCABLE main menu. Pressing and immediately releasing the RES button (or DISTANCE button) will display the message *WAIT* for a few seconds. After the command is executed, the message *CLEAR FAULTS* will reappear.

## 2.14 REGENERATION ALERT

**Brief description:** Triggers a visual and audible alert whenever a DPF regeneration occurs (DIESEL vehicles). By default, only certain types of regeneration are shown to the user. This function allows for a notification to be received every time, starting from the post-injection phase, which is part of the regeneration process.

**Note:** This is a function that can be enabled or disabled from the SETUP MENU, as described in section 2.1.

## 2.15 4WD DISABLER

**Brief description:** Disables all-wheel drive. To be enabled only on vehicles equipped with this feature.

**Note 1:** This is a function that can be enabled or disabled from the SETUP MENU, as described in section 2.1.

Once the function has been enabled through the SETUP menu, a new option "4WD ENABLED" will appear in the BACCABLE main menu, indicating the default condition for AWD vehicles. Pressing and immediately releasing the RES button (or DISTANCE button) on the steering wheel will change the menu to display "4WD DISABLED."

**Note 2:** This function can only be activated while the vehicle is stationary.

## 2.16 BRAKES OVERRIDE

**Brief description:** Activates and deactivates the front brakes via the RES button (or DISTANCE button) on the steering wheel. This function is also commonly referred to as “burn-out.”

**Note 1:** This is a function that can be enabled or disabled from the SETUP MENU, as described in section 2.1.

Once this function has been enabled via the SETUP menu, an additional option “Front Brake Normal” will appear in the BACCABLE main menu, indicating the default condition.

Pressing and immediately releasing the RES button (or DISTANCE button) on the steering wheel will change the menu to display “Front Brake FORCED” and the brake will engage.

Pressing and immediately releasing the RES button (or DISTANCE button) again will release the brake and the menu will show “Front Brake Normal” again.

**Note 2:** For a proper burnout on 2WD vehicles, it is recommended to first disable stability controls by activating the DYN0 function. Then activate the front brakes using the function described in this section. After a few seconds of throttle application and once smoke appears from the rear tires, press the button again to release the front brakes.

**Note 3:** This function can only be activated while the vehicle is stationary.

**WARNING:** It is strongly recommended to deactivate the BRAKES OVERRIDE function via the SETUP menu when not in use.

**WARNING:** This function causes significant stress on all mechanical components involved, including suspension, half-shafts, clutch, and flywheel. Apply throttle decisively to quickly overcome the tires’ initial friction, which is the point of highest mechanical stress.

## 2.17 REMOTE START

Under development. Do not activate this function.

## 2.18 READ FAULTS

Under development. Do not activate this function.