

# Template:FMB CAN line connection

Easy steps to connect FMB1YX CAN line to the vehicle directly and following contactless CAN connectors:

- [SIMPLE-CAN](#)
- [MINI-CAN](#)

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## Installing FMB1YX device

### Tools needed for installation


- Wiring scheme by CAN adapter and "*Supported vehicle list*":
  - [LV-CAN200](#)
  - [ALL-CAN300](#)

**Note:** to get current wiring scheme or if on the "*Supported vehicle list*" you do not find your vehicle, please contact Teltonika Sales Representative and provide information about **vehicle manufacturer, model** and **year**.

- FMB1YX device
- Pliers
- Quick splice connectors (If vehicle CAN bus wires are very thin CAN adapter wires should be connected directly)
- Plastic pry tool
- Zip ties

## Installation steps

1. Be ready with a vehicle **connection scheme** that you have received from a Teltonika Sales Representative.
2. **Check the scheme** for the current vehicle connection. Look for connectors matching **PINs numbers** and colors (can be different) according to connection scheme.
3. Connect FMB1YX **CAN wires (CAN L, CAN H)** as specified in connection scheme.

 **Do not swap CAN L and CAN H lines.**  
**Not all FMB1YX wires may be used in vehicle.**

4. Connect FMB1YX **positive** and **ground** wires to the vehicle power supply lines.

 **Do not swap power supply lines.**  
**Make sure that voltage does not exceed 30V.**

5. Switch vehicle **ignition to ACC** position. FMB1YX **CAN status LED** on the side should start **blinking**.
6. Configure FMB1YX to read CAN bus data or control vehicle by setting its **program number** - [CAN Adapter configuration](#)



**When FMB1YX device turns on sleep mode, CAN chip is turned off till device turns off sleep mode.**

## Installing FMB1YX + SIMPLE-CAN / MINI-CAN

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### Tools needed for installation

- Connection scheme by CAN adapter:
  - [LV-CAN200](#)
  - [ALL-CAN300](#)

**Note:** if on the "*Supported vehicle list*" you do not find your vehicle, please contact Teltonika Sales Representative and provide information about **vehicle manufacturer, model** and **year**.

- [SIMPLE-CAN](#) / [MINI-CAN](#) (Used for contactless connection. If **two CAN lines** need to be connected, **two SIMPLE-CAN's / MINI-CAN's** must be used.)
- FMB1YX device
- Pliers
- Quick splice connectors (If vehicle CAN bus wires are very thin CAN adapter wires should be

connected directly)

- Plastic pry tool
- Zip ties

## Installation steps

1. Connect the appropriate CAN bus pair of wires between FMB1YX and [SIMPLE-CAN](#) / [MINI-CAN](#):

If **CAN1 line** need to be connected as specified in connection scheme:

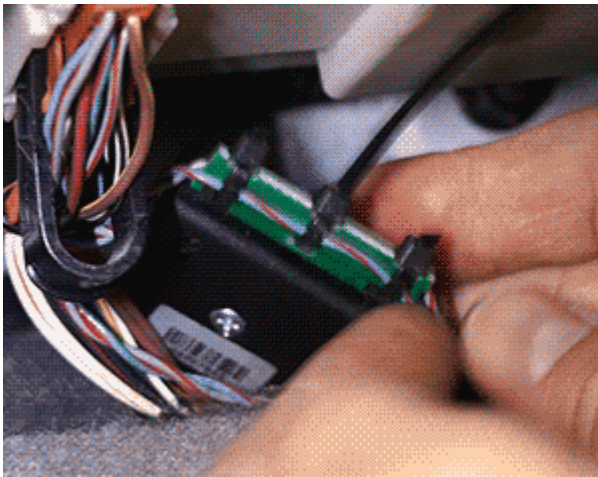
1. Connect FMB1YX **CAN1 L** to **CAN L** of [SIMPLE-CAN](#) / [MINI-CAN](#).
2. Connect FMB1YX **CAN1 H** to **CAN H** of [SIMPLE-CAN](#) / [MINI-CAN](#).

If **CAN2 line** need to be connected as specified in the connection scheme:

1. Connect FMB1YX **CAN2 L** to **CAN L** of [SIMPLE-CAN](#) / [MINI-CAN](#).
2. Connect FMB1YX **CAN2 H** to **CAN H** of [SIMPLE-CAN](#) / [MINI-CAN](#).

- ☒ **Do not swap CAN L and CAN H lines.**  
**Not all CAN adapter wires may be used in vehicle.**

2. Fasten [SIMPLE-CAN](#) / [MINI-CAN](#) between vehicle CAN bus wires according to the connection scheme. **It doesn't matter which wire is on which side.**



3. Connect FMB1YX **positive** and **ground** wires to the vehicle power supply lines or near FMB1YX power wires.

- ☒ **Do not swap power supply lines.**  
**Make sure that voltage does not exceed 30V.**

4. Switch vehicle **ignition** to **ACC** position.
5. [SIMPLE-CAN](#) / [MINI-CAN](#) **LED will shine continuously** so device awaits for **calibration**.



○ **Press the switch shortly** and wait for the LED to start blinking **every one second**.



○ Automatic calibration process takes up to 10 seconds depending on the vehicle model. Device is calibrated properly then the LED is blinking **every 2 seconds**.

☒ If after calibration process LED shines continuously, it means that device is not calibrated yet, CAN-BUS transmission has failed or ignition during calibration was not ON.

6. Configure FMB1YX to read CAN bus data by setting its **program number** - [CAN Adapter configuration](#)

## FMB1YX Configuration

### FMB1YX program number selection

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FMB1YX must be set to program number which depends on the vehicle model. **Needed program number is always written on CAN Adapter mounting scheme.** In order to be able to enter program number in adapter **Software date of CAN adapter must be newer than connection scheme date.** CAN adapter Software date can be checked:

- Via [Teltonika Configurator→Status→CAN Adapter](#)
- Via SMS command - [lvcangetinfo](#)

### Entering via SMS command

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Required conditions:

- FMB1YX properly connected to vehicle

FMB1YX program number can be set remotely, using SMS command. Send following **SMS command** to FMB1YX device:

- If you have set SMS login and password: `login pass lvcansetprog X`
- If SMS login and password are not set leave two spaces before command: `lvcansetprog X`

Command example: `lvcansetprog 11434`

SMS response: `LVCAN ProgNum: 11434`

If during SMS command FMB1YX was in following Sleep mode:

- [GPS Sleep](#) - Program No. will be set immediately.
- [Deep Sleep](#) - Program No. will be set after device wake up.
- [Online Deep Sleep](#) - Program No. will be set immediately.
- [Ultra Deep Sleep](#) - Program No. will be set after device wake up.

### Entering via Teltonika Configurator

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Required conditions:

- FMB1YX properly connected to vehicle

FMB1YX program number can be set via [Teltonika Configurator](#) → (1) **CAN Adapter** → (2) **Program Number**. When program number is entered press  (3) **Save to device** button that saves the entered program number into FMB1YX.



### FMB1YX CAN Adapter parameters configuration

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## Teltonika Configurator

CAN Adapter configuration can be performed using [Teltonika Configurator](#) via **Micro-USB cable** or **Blue-tooth connection** when CAN Adapter is connected to the vehicle.

When FMB1YX is connected to the CAN Adapter, user can see all information that is received from the vehicle in [Teltonika Configurator](#) → **Status** → **CAN Adapter** tab or [Teltonika Configurator](#) → **CAN Adapter** section. In **Status** → **CAN Adapter** tab you can see information about CAN adapter and its readable parameters. In **CAN Adapter** section you can configure CAN Adapter and see incoming CAN bus data highlighted by **green** background color. Incoming data in both sections is automatically refreshed every 5 seconds. CAN bus data which should be readable from your vehicle is provided in "CAN Adapter supported vehicles list", which you can get from Teltonika Sales Representative.

The CAN Adapter I/O element can be configured like any other I/O element in [Teltonika Configurator](#). All information about I/O element parameters description is in section [I/O settings](#).



When using offline configuration method user can select which CAN data (according to vehicle) will be sent directly to the server without connection to adapter.

**Send data with 0, if ignition is off**

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Depending on CAN Adapter I/O parameters and ignition status, FMB1YX can send locked (last known) CAN Adapter I/O and active (real time) parameters values or reset values to 0. When ignition is off, CAN Adapter I/O parameters values sent to server are:

| CAN Adapter I/O element    | Status |
|----------------------------|--------|
| Vehicle Speed              | reset  |
| Accelerator pedal position | reset  |
| Total fuel used            | lock   |
| Fuel level (liters)        | lock   |
| Engine RPM                 | reset  |
| Total mileage              | lock   |
| Fuel level (%)             | lock   |
| Program number             | lock   |
| Module ID                  | lock   |
| Engine Work Time           | lock   |
| Engine Work Time (counted) | lock   |
| Total Mileage (counted)    | lock   |
| Fuel Consumed (counted)    | lock   |
| Fuel Rate                  | reset  |
| Program number             | lock   |
| AdBlue Level (%)           | lock   |

|   |        |
|---|--------|
| <b>AdBlue Level (liters)</b>                  | lock   |
| <b>Engine Load</b>                            | reset  |
| <b>Engine Temperature</b>                     | active |
| <b>Axle 1 Load</b>                            | lock   |
| <b>Axle 2 Load</b>                            | lock   |
| <b>Axle 3 Load</b>                            | lock   |
| <b>Axle 4 Load</b>                            | lock   |
| <b>Axle 5 Load</b>                            | lock   |
| <b>Control State Flags</b>                    | active |
| <b>Agricultural Machinery<br/>Flags</b>       | active |
| <b>Harvesting Time</b>                        | lock   |
| <b>Area of Harvest</b>                        | reset  |
| <b>Mowing Efficiency</b>                      | active |
| <b>Grain Mown Volume</b>                      | active |
| <b>Grain Moisture</b>                         | active |
| <b>Harvesting Drum RPM</b>                    | reset  |
| <b>Gap Under Harvesting Drum</b>              | active |
| <b>Security State Flags</b>                   | active |
| <b>Tachograph Total Vehicle<br/>Distance</b>  | lock   |
| <b>Trip Distance</b>                          | reset  |
| <b>Tachograph Vehicle Speed</b>               | reset  |
| <b>Tachograph Driver Card<br/>Presence</b>    | active |
| <b>Driver1 States</b>                         | active |
| <b>Driver2 States</b>                         | active |
| <b>Driver1 Continuous Driving<br/>Time</b>    | active |
| <b>Driver2 Continuous Driving<br/>Time</b>    | active |
| <b>Driver1 Cumulative Break<br/>Time</b>      | active |
| <b>Driver2 Cumulative Break<br/>Time</b>      | active |
| <b>Driver1 Selected Activity<br/>Duration</b> | active |
| <b>Driver2 Selected Activity<br/>Duration</b> | active |
| <b>Driver1 Cumulative Driving<br/>Time</b>    | active |
| <b>Driver2 Cumulative Driving<br/>Time</b>    | active |

## SMS Configuration

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All FMB1YX IO elements can be configured remotely via SMS commands.

### SMS/GPRS Commands

FMB1YX have several dedicated SMS/GPRS commands.

SMS command structure:

<SMS login><space><SMS password><space><command><space><value>

SMS command [lvcangetinfo](#) example:

- If you have set SMS login and password: login pass lvcangetinfo
- If SMS login and password are not set leave two spaces before command: `aa lvcangetinfo`

GPRS commands require [Codec 12](#) protocol.

For more SMS commands please see [SMS/GPRS command list](#)

| COMMAND                         | DESCRIPTION  | RESPONSE |
|---------------------------------|--|----------|
| lvcansetprog #                  | Set program number to CAN Adapter that is connected to FMB1YX.<br># - three digit number that identity vehicle.  | Yes      |
| lvkansimpletacho #              | Add or remove simpletacho start byte.<br># - 0 or 1 (0 - don't add start byte, 1 - add start byte).  | No       |
| lvcangetprog                    | Get program number from CAN Adapter that is connected to FMB1YX.   | Yes      |
| <a href="#">lvcangetinfo</a>    | Get information about connected CAN Adapter  | Yes      |
| <a href="#">lvcanclear #</a>    | Clear Total Mileage (counted), Engine Work Time (counted), Fuel Consumed (counted) parameters values.<br># - parameter (0 - Engine work time (counted), 1 - Fuel Consumed (counted), 2 - Vehicle Mileage (counted)). | Yes      |
| allcanmode                      | Turn on ALL-CAN300 mode.   | Yes      |
| lvcanmode                       | Turn on LV-CAN200 mode.  | Yes      |
| <a href="#">lvcanfaultcodes</a> | Read DTC fault codes   | Yes      |