FISCuntrol Installation Guide

Forbes Automotive

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Product Overview

Thank you for purchasing FISCuntrol by Forbes Automotive!

With all our products, this one is all opensource too – so you're able to customise it to your needs. It supports custom boot messages which can be text-based or a custom logo. K-Line diagnostics, CANBUS and OpenHaldex are all supported, just select the options you have in the firmware.

The full range of options are:

- FIS Output
  - Custom text-boot messages
  - Custom boot logos
- K-Line
  - For connection to various modules throughout the car (typically ECU)
- CANBUS
  - In development, but for CAN based ECUs like Ignitron, a list of protocols to be developed
- OpenHaldex
  - Pairs with OpenHaldex via. CAN messages to select or view current Haldex status
- OEM Controls
  - Utilises the stock buttons for toggling through menus

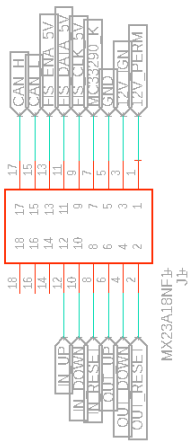
At a minimum, the FISCuntrol can be used purely for boot messages and will therefore require the least amount of wiring.

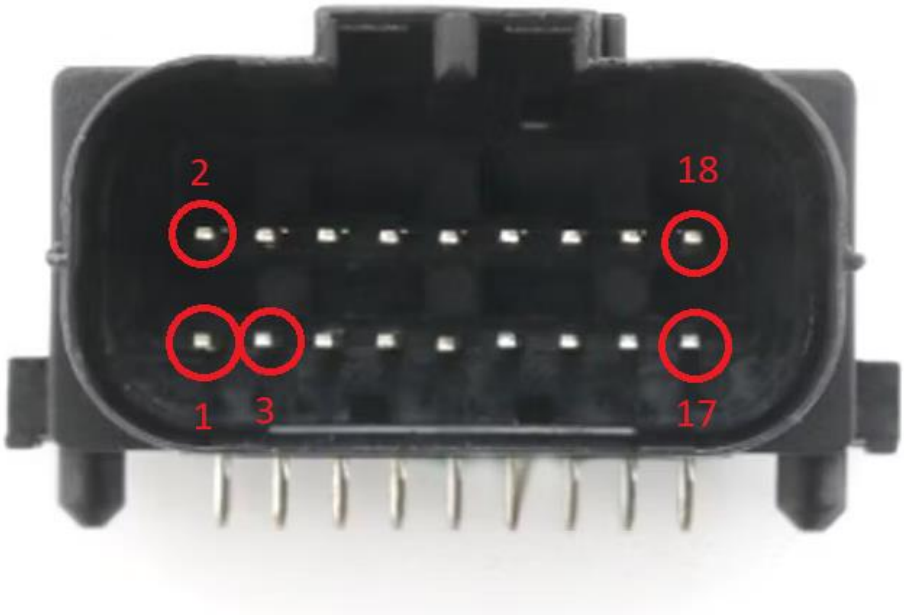
Wiring Installation

Initial Setup

The module will come suppled with a plug **only**. It is the end user's responsibility to make the final connections to the car depending on the required setup. This setup should then be paired with the appropriate firmware.

Pin Number	Basic Detail	Comments
1	12v Perm (K30)	Permanent power - for keeping the module awake - mainly for custom text/time based boot messages
2	Reset (Cluster)	Reset button back to cluster
3	12v Ignition (K15)	Switched power (for waking up the module)
4	Down (Cluster)	Down button back to cluster
5	Ground (K31)	Ground - to chassis or similar
6	Up (Cluster)	Up button back to cluster
7	K-Line	K-Line (grey)
8	Reset (Stalk)	Reset button to stalk
9	FIS Clock	FIS Clock Wire (30)
10	Down (Stalk)	Down button to stalk
11	FIS Data	FIS Data Wire (31)
12	Up (Stalk)	Up button to stalk
13	FIS Enable	FIS Enable Wire (32)
14	N/A	Not used
15	CAN Low	CAN Low
16	N/A	Not used
17	CAN High	CAN High
18	N/A	Not used





Basic Operation

Using Stalk Buttons

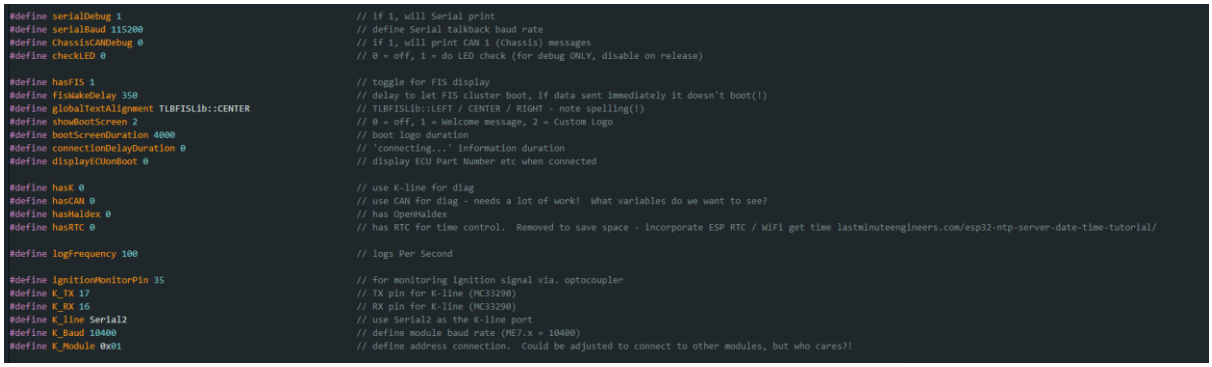
If you have chosen to use the OEM stalk buttons as a means of interface, the default operation is to:

- Boot module, typically FIS Screen, welcome message
- Log into ECU via. K-Line or CAN
    - Display variables
- ECU 'Blocks' can be toggled with the Up/Down buttons on the OEM stalk
- A long hold on the reset button will disable the controller to allow the OEM menus to be used

Updating Software

Periodic firmware updates are available for download and can be uploaded to the OpenHaldex module with ease.

- Go to: https://github.com/adamforbes92/FISCuntrolCAN
- Choose the most recent software version
- Download and save locally
- Install Arduino IDE and open the downloaded software
    - Ensure ESP is installed
- Use the 'config.h' page to adjust the features you wish to use



```
#define serialDebug 1                           // if 1, will Serial print
#define serialBaud 115200                       // define Serial talkback baud rate
#define ChassisCANDebug 0                       // if 1, will print CAN 1 (Chassis) messages
#define checkLED 0                              // 0 = off, 1 = do LED check (for debug ONLY, disable on release)

#define hasFIS 1                                // toggle for FIS display
#define fisWakeDelay 350                        // delay to let FIS cluster boot, if data sent immediately it doesn't boot(!)
#define globalTextAlignment TLBFISLib::CENTER   // TLBFISLib::LEFT / CENTER / RIGHT - note spelling(!)
#define showBootScreen 2                        // 0 = off, 1 = Welcome message, 2 = Custom Logo
#define bootScreenDuration 4000                 // boot logo duration
#define connectionDelayDuration 0               // 'connecting...' information duration
#define displayECUonBoot 0                      // display ECU Part Number etc when connected

#define hasK 0                                  // use K-line for diag
#define hasCAN 0                                // use CAN for diag - needs a lot of work!  What variables do we want to see?
#define hasHaldex 0                             // has OpenHaldex
#define hasRTC 0                                // has RTC for time control.  Removed to save space - incorporate ESP RTC / WiFi get time lastminuteengineers.com/esp32-ntp-server-date-time-tutorial/

#define logFrequency 100                        // logs Per Second

#define ignitionMonitorPin 35                   // for monitoring ignition signal via. optocoupler
#define K_TX 17                                 // TX pin for K-line (MC33290)
#define K_RX 16                                 // RX pin for K-line (MC33290)
#define K_line Serial2                          // use Serial2 as the K-line port
#define K_Baud 10400                            // define module baud rate (ME7.x = 10400)
#define K_Module 0x01                           // define address connection.  Could be adjusted to connect to other modules, but who cares?!
```

- From boards, select ESP32 DevKit and press compile and upload

Disclaimer

DISCLAIMER:

Forbes Automotive is not responsible for any damage or loss that may occur to your vehicle or its contents during or after the installation of the FISCuntrol Module. By agreeing to use our product, you acknowledge that you have read and understand this disclaimer and agree to release Forbes Automotive from any liability for damages or losses.

LIMITATION OF LIABILITY:

In no event shall **Forbes Automotive** be liable for any direct, indirect, incidental, consequential, special, or punitive damages arising out of or in connection with the installation of the OpenHaldex T4 module, whether in contract, tort, strict liability, or any other legal theory.

This product is to be used in off-road applications only.

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