Motia Installation Guide

Track Smart - Calamp

The Motia Calamp tracking unit is a standard 3 wire installation with fused VCC+ and ignition/switched live connectors.

The Motia Calamp unit has 2 auxiliary ports that can be used to connect to expansion devices such as the Motia Connect Squarell unit for CAN-Bus tracking data. The Motia Calamp also has several fly leads that can be used for input and/or output triggers to other devices.

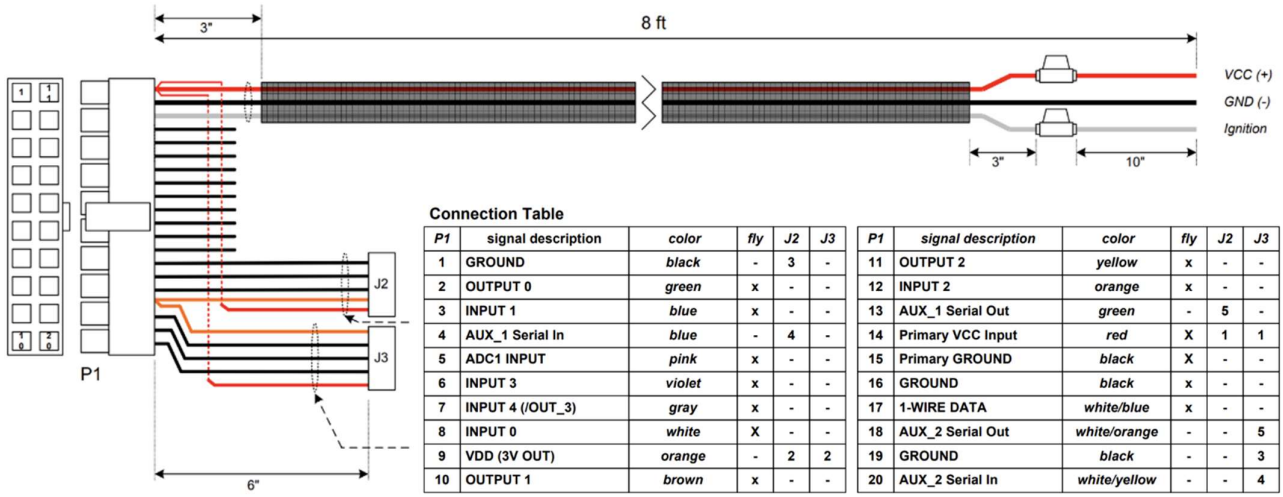
Excluding the 3 wire installation, the primary connectors used by Motia Calamp's are:

- Aux 2 (J3 Connector on Calamp) to connect to the Motia Connect Squarell Unit
- LTA (Left Turn Alarm) Mute – Output 0 (green fly lead on Motia Calamp)
- DVR Relay – Output 1 (brown fly lead on Motia Calamp)
- Squarell DAP (Driver Assistance Panel) On/Off – Output 2 (yellow fly lead on Motia Calamp)
  Please read further down this document for instructions on how to make the above connections

Example images are below of what the Motia Calamp unit looks like and expected installation standard. The Motia Calamp units have many notches around the outer chassis designed for cable ties to firmly secure them to the vehicle's chassis. This is very important to securely fit the unit so that the accelerometer within the unit performs correctly.

Please install the unit in a discreet location and ensure that adequate GSM (mobile) & GPS (location) connectivity. A solid orange (GSM) and green (GPS) light will indicate the unit is powered and connected to both services.

Motia Calamp Harness Diagram



Connection Table

P1	signal description	color	fly	J2	J3
1	GROUND	black	-	3	-
2	OUTPUT 0	green	x	-	-
3	INPUT 1	blue	x	-	-
4	AUX_1 Serial In	blue	-	4	-
5	ADC1 INPUT	pink	x	-	-
6	INPUT 3	violet	x	-	-
7	INPUT 4 (/OUT_3)	gray	x	-	-
8	INPUT 0	white	X	-	-
9	VDD (3V OUT)	orange	-	2	2
10	OUTPUT 1	brown	x	-	-

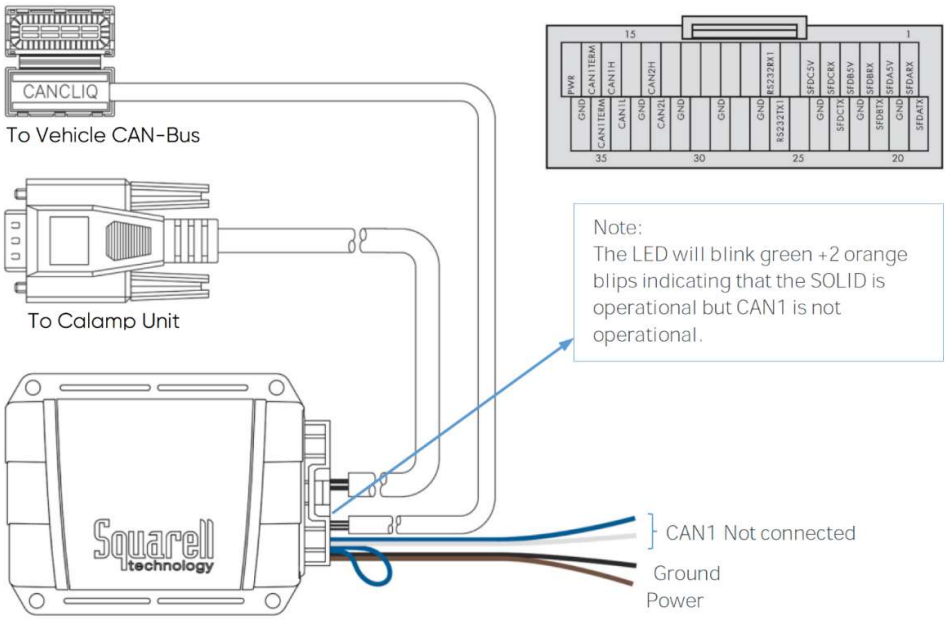
P1	signal description	color	fly	J2	J3
11	OUTPUT 2	yellow	x	-	-
12	INPUT 2	orange	x	-	-
13	AUX_1 Serial Out	green	-	5	-
14	Primary VCC Input	red	X	1	1
15	Primary GROUND	black	X	-	-
16	GROUND	black	x	-	-
17	1-WIRE DATA	white/blue	x	-	-
18	AUX_2 Serial Out	white/orange	-	-	5
19	GROUND	black	-	-	3
20	AUX_2 Serial In	white/yellow	-	-	4

Fuel Smart Pro - Squarell

The Squarell Solid unit is Motia's CAN-Bus telematics device used to read CAN data passively from the vehicle's CAN-Bus network. The Squarell requires 3 main connections, power, CAN & RS232. The unit does not require an ignition switched power connection as the unit can determine the ignition state from the CAN connection.

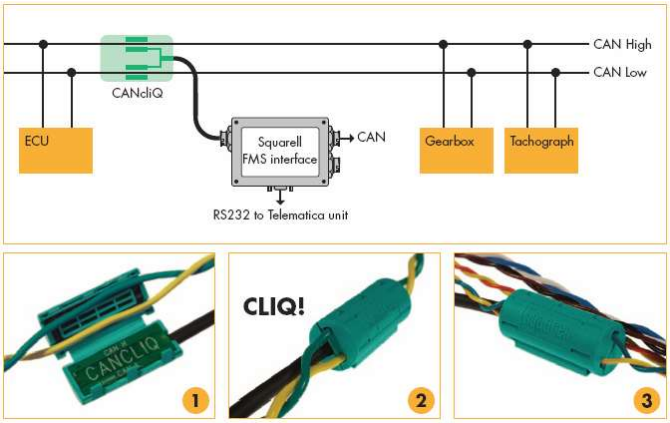
The power and RS232 connections are the same for all installations and vehicles, but the CAN connections vary by manufacturer, model and vehicle year. It is important to ensure the correct CAN lines are connected too so if you require assistance with locating the correct CAN lines please first check our Squarell KB https://support.Motia.com/hc/en-us/articles/115003727831-Motia-Squarell-Support-Guide or contact the Motia Support Team on fleetsupport@Motia.com or 02894 485 423

Please see below the 3 main connections for the Squarell unit, the blue and white fly leads are direct CAN connection so are not required. If additional CAN connectors or a DAP (driver assistance panel) are required these need to be connected to the Squarell JAE connector:



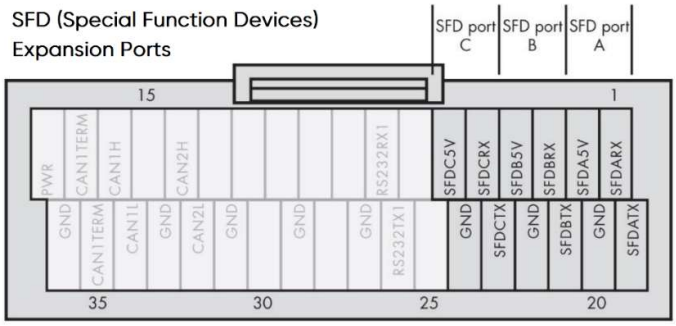
Motia Installation Guide

Please ensure to cable tie the CAN-Cliq connector so it cannot open during driving:



Connecting Additional CAN-Bus Connections

If you need to make a secondary CAN-Bus connection for J1708 (blue), ID180 (purple), ID190 (purple) or DAP (Driver Assistance Panel) then you need to connect to one of the SFD (Special Function Devices) ports on the Squarell Solid unit. There are 3 SFD ports and you can connect to any of them and the Squarell will automatically detect the SFD device. Please see below for the SFD connection points on the Squarell connector and also the cable colourings and pins for the SFD devices.



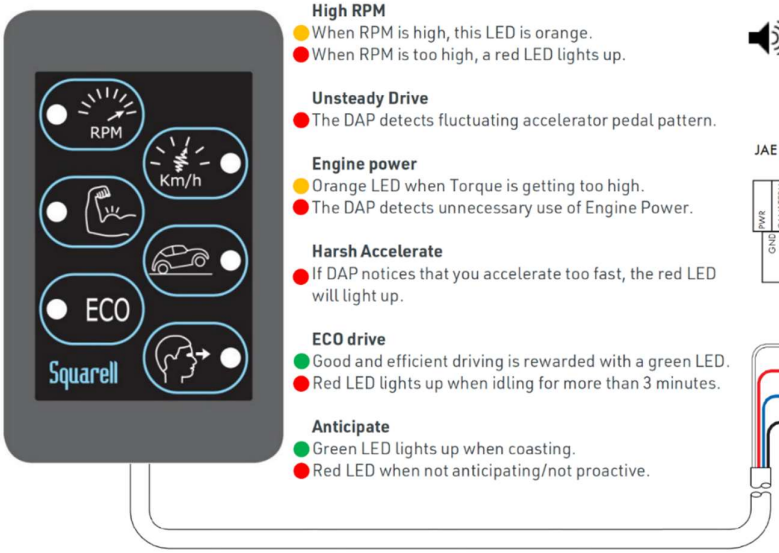
Wire colour	SFD A	SFD B	SFD C
WH	1	3	5
RD	2	4	6
BU	19	21	23
BK	20	22	24

For J1708, ID180, ID190 or DAP Connections

DATA CLIQ

Squarell DAP (Driver Assistance Panel)

The DAP is connected to the Squarell via one of the SFD ports the same as a secondary Data Cliq. Please see pin out diagram below for the Squarell connector, and also the behaviours expected by the DAP in operation.



High RPM
- When RPM is high, this LED is orange.
- When RPM is too high, a red LED lights up.

Unsteady Drive
- The DAP detects fluctuating accelerator pedal pattern.

Engine power
- Orange LED when Torque is getting too high.
- The DAP detects unnecessary use of Engine Power.

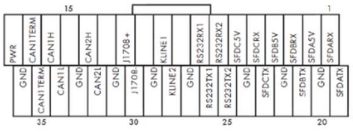
Harsh Accelerate
- If DAP notices that you accelerate too fast, the red LED will light up.

ECO drive
- Good and efficient driving is rewarded with a green LED.
- Red LED lights up when idling for more than 3 minutes.

Anticipate
- Green LED lights up when coasting.
- Red LED when not anticipating/not proactive.

To get your attention, a flashing LED is occasionally accompanied by a sound signal.

JAE Connector

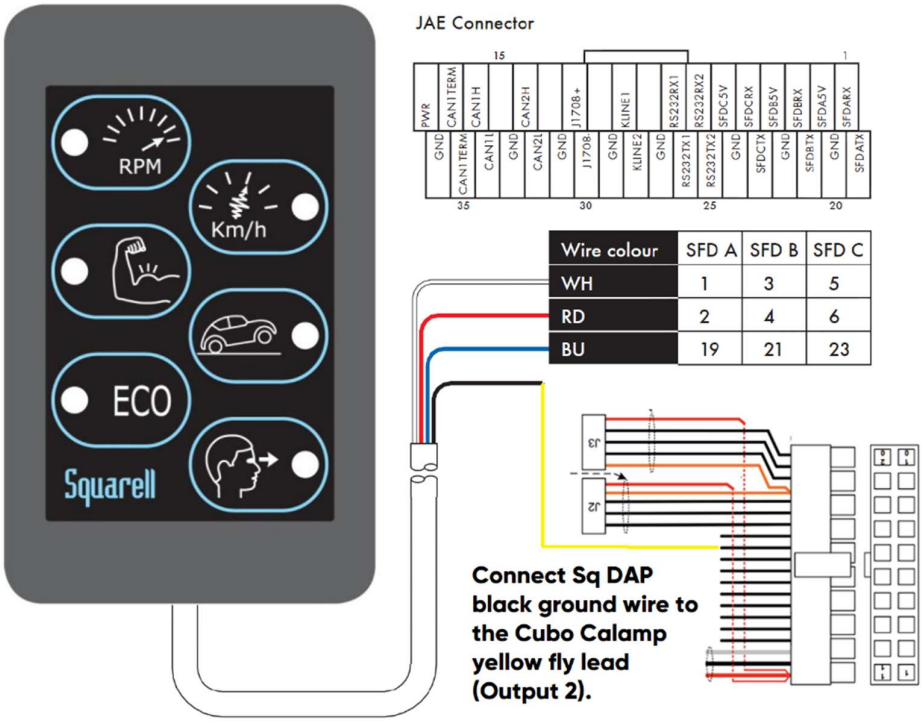


Wire colour	SFD A	SFD B	SFD C
WH	1	3	5
RD	2	4	6
BU	19	21	23
BK	20	22	24

The DAP is mounted in the vehicle using the adhesive pads on the back of the unit as shown below. The easiest method to test the DAP is to leave the vehicle idling for 3 minutes and then the eco light will turn red.

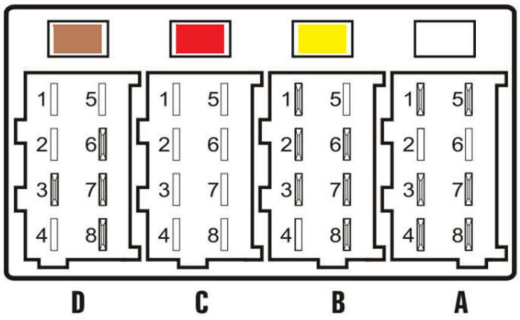
Squarell DAP with Calamp Output 2 Remote Power Control

If installing the DAP panel for a driver training requirement such as the CAF (Climate Action Fund) project then you need to cut the ground wire and connect it to Motia Calamp Output 2 (yellow fly lead) so that the DAP can be turned on and off remotely.



Connecting K-Line to the Tachograph Pin D8

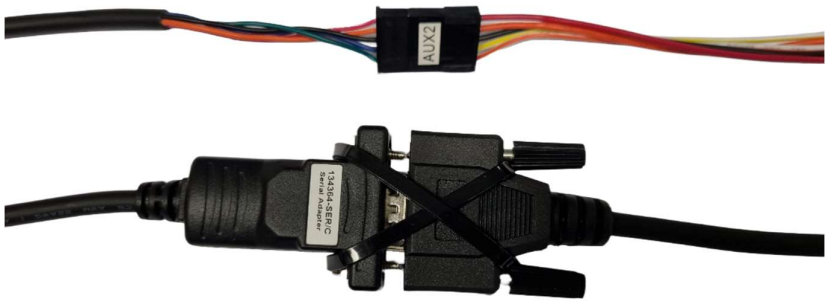
There is a 5m orange fly lead on the Squarell Solid JAE connector which must be connected to the tachograph pin D8 on all HGV's. Please see an example D8 k-line connection and tachograph connector diagram below:



Connecting the Calamp & Squarell Solid Units

In order for the Squarell data to be transmitted it needs to be connected via the Motia Calamp unit. This is achieved by connecting the 9 pin serial RS232 output from the Squarell unit to the 5 pin Aux 2 (J3) connector on the Motia Calamp unit.

It is advised to cable tie the RS232 connection to ensure the connectors do not come lose or detach during driving.



Calamp 5 Pin Aux 2 to RS232 Connector Diagram: