

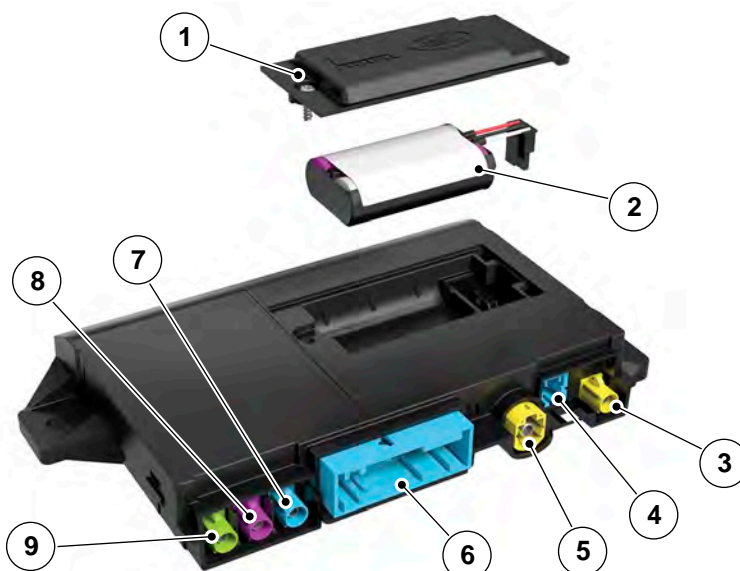
Jaguar InControl Telematics Control Module (TCU)

The Telematics Control Module (TCU) controls the Telematics system, communicating with the vehicle systems over the High Speed (HS) powertrain and Medium Speed (MS) body CAN bus systems. For security reasons, the TCU is located in a position that is not easy to access – the left side of the 'D' pillar. This deters an attempt by a thief to remove or disconnect the module. If InControl Protect is enabled, a disconnected TCU will still broadcast vehicle position information using integral backup batteries. The system transmits/receives signals via Radio Frequency (RF), GPS and GSM.

A back-up battery pack, consisting of two battery cells, is integrated into the TCU. This enables continued operation in the event of a vehicle main power source disconnection, for example in a major accident or in the case of deliberate action of a thief as part of a vehicle theft attempt. This feature enables the emergency call (eCall) and vehicle tracking functions to continue operating.

NOTE: A vehicle built with a TCU will not crank the engine if the TCU is disconnected, regardless of whether the customer has a valid InControl subscription.

Telematics Control Module (TCU)



E159673

Item	Description	Item	Description
1	Battery cover	6	Main connector, power and signal interfaces
2	Battery pack	7	GPS antenna connector
3	Wi-Fi rooftop antenna for external WLAN (future use)	8	GSM main antenna connector
4	USB connector to SIM card module	9	GSM diversity antenna connector (future use)
5	Ethernet connector (future use)		

Telematics Control Module (TCU) Operation

The TCU receives the following inputs:

- Hardwired and CAN crash signal from the Restraints Control Module (RCM)
 - Automatic eCall activation
- eCall/bCall switch activation signals
- Microphone signal
- Roof pod or telematics antenna GSM and GPS signals

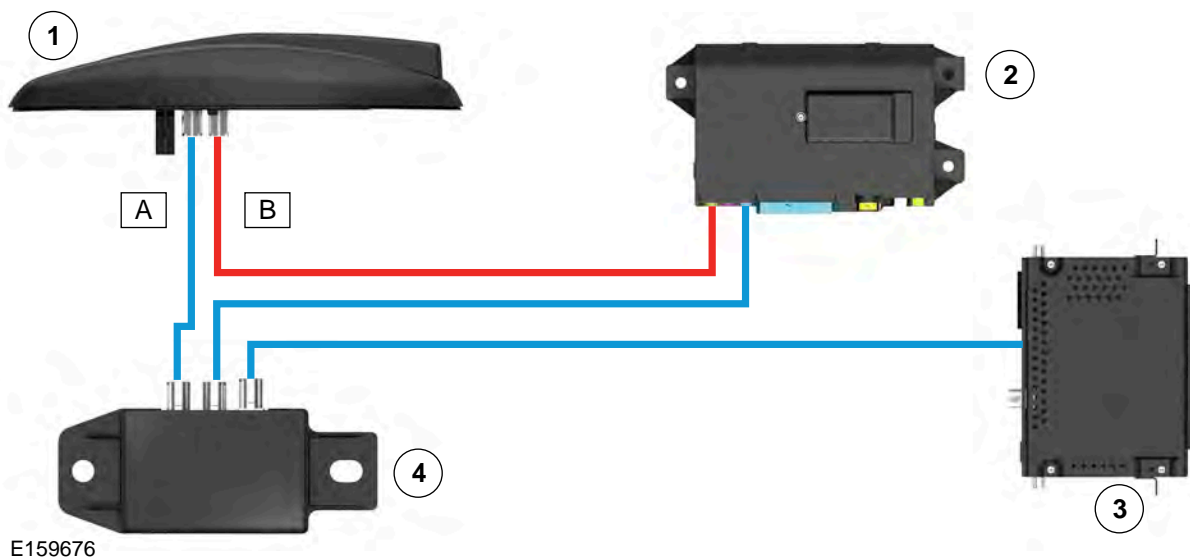
The TCU provides the following outputs:

- Telematics speaker

Communication with the vehicle systems is via the MultiCAN buses, enabling remote vehicle feature functions. The following TCU primary communications transmit data on the following MultiCAN buses:

- Engine immobilization start request ID
 - Telematics Control Module to Central Junction Box: Powertrain HS CAN
- Restraints Control Module crash signal status/verification
 - Telematics Control Module to Restraints Control Module: Powertrain HS CAN
- InControl™ data
 - Telematics Control Module to Instrument Cluster and Touch Screen: Body MS CAN

Global Positioning System (GPS) Signal Splitter



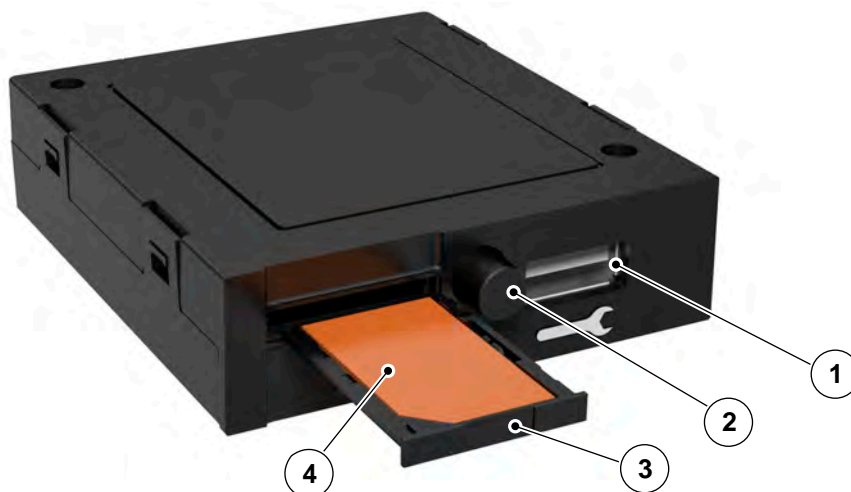
The roof pod on vehicles with the telematics system contains antennas for the reception of Global Positioning system (GPS) signals and Global System for Mobile communications (GSM) signals. Depending on vehicle specifications, the roof pod can also contain antennas for SDARS and Digital Audio Broadcast (DAB).

The GPS signal is passed via a coaxial cable to the GPS signal splitter, where it is then passed to the Audio Head Unit (AHU) or the Infotainment Master Controller (IMC) for use by the navigation system and to the Telematics Control Module (TCU) for use by the Telematics system.

Item	Description	Item	Description
A	GPS signal	2	Telematics Control Module
B	GSM signal	3	Audio Head Unit (AHU) or Infotainment Master Controller (IMC)
1	Roof pod (GPS/GSM antenna)	4	GPS signal splitter

3G Wi-Fi Module

The 3G Wi-Fi module is optional on InControl Touch variants and is located under the parcel shelf in the luggage compartment. InControl Touch Pro systems have a SIM card reader in the center console.

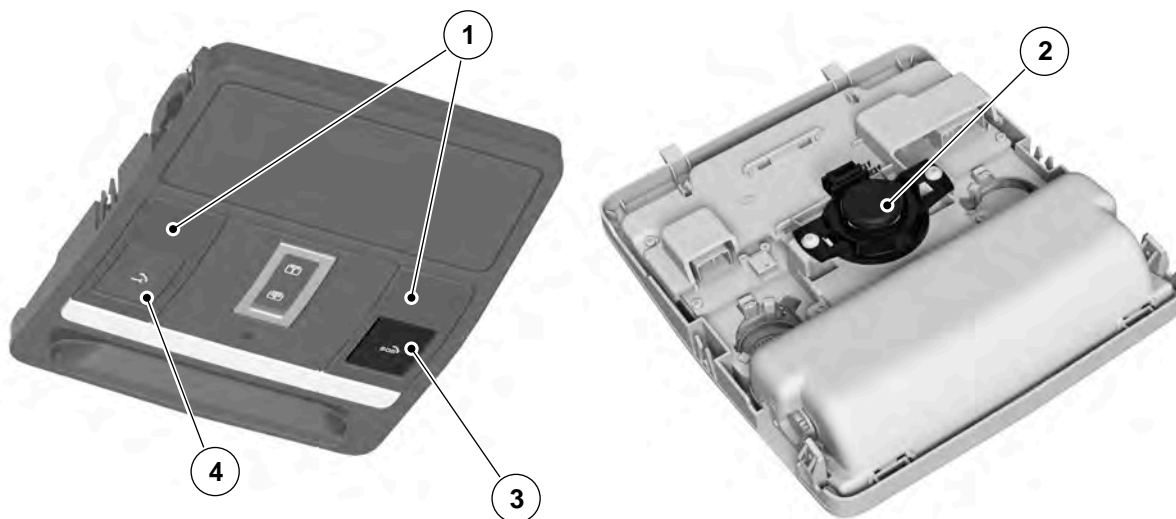


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Item	Description	Item	Description
1	USB port (engineering use only)	3	SIM card holder
2	SIM card holder release button	4	SIM card

Overhead Console

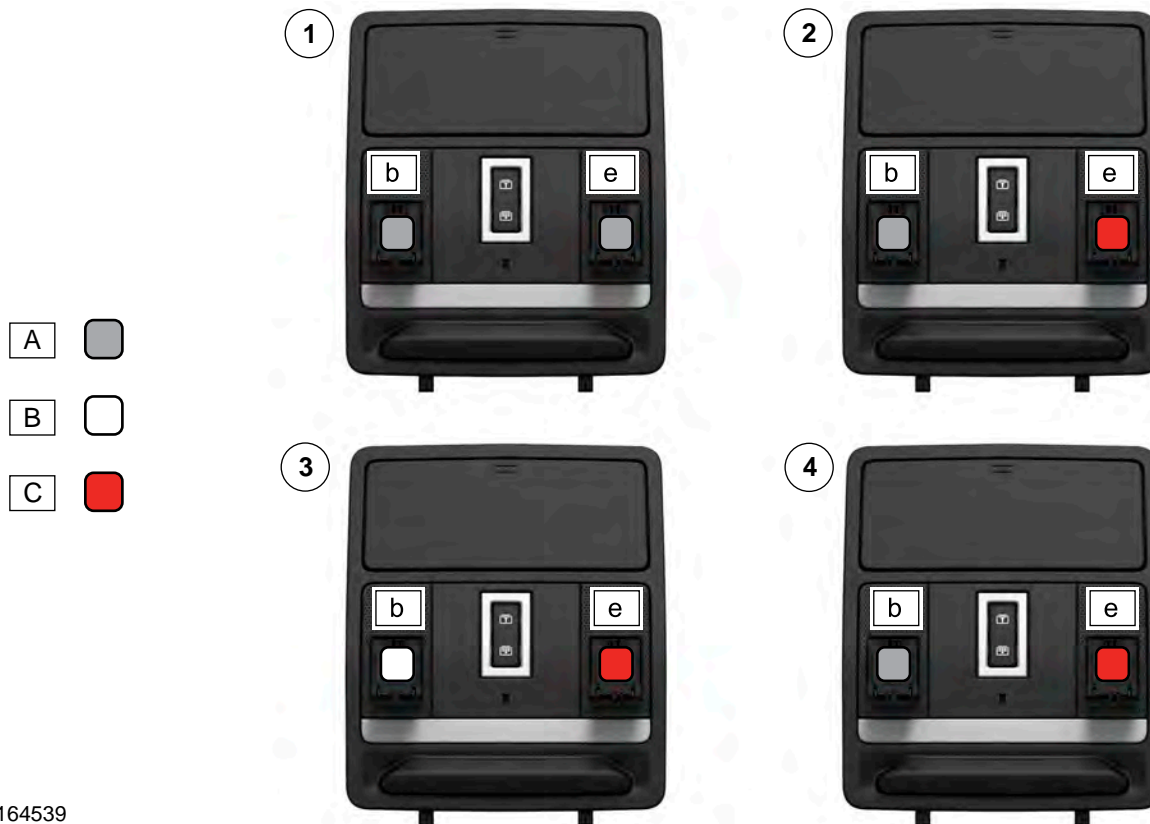
The Overhead Console houses the emergency call switch (eCall) and breakdown call switch (bCall), each located behind a small cover flap, a microphone and a Telematics speaker. The functions of the eCall and bCall switches are controlled by the TCU.



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Item	Description	Item	Description
1	Microphone	3	eCall switch
2	e/bCall speaker	4	bCall switch

bCall and eCall Switches



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Item	Description	Item	Description
A	LED extinguished	3	State 3
B	bCall – permanent white LED	4	State 4
C	eCall – permanent red LED	b	Breakdown Button
1	State 1	e	Emergency Call Button
2	State 2		

- **State 1** – The CAN bus is awake or the engine is running, but neither of the lamps are illuminated:
 - The vehicle has not gone through a PDI
 - InControl Remote, InControl Protect, and Wi-Fi cannot be activated until the PDI is complete
- **State 2** – The CAN bus is awake or the engine is running. The eCall switch illuminated red and bCall switch is not illuminated:
 - The vehicle PDI is completed
 - InControl Remote, InControl Protect, and Wi-Fi are ready for activation
- **State 3** – The CAN bus is awake or the engine is running. The eCall switch is illuminated red and the bCall switch is illuminated white:
 - InControl Remote, InControl Protect, and Wi-Fi activation is completed and linked to a user account
- **State 4** – The CAN bus is awake or the engine is running. The eCall switch is illuminated red and the bCall switch is not illuminated (post-activation):
 - The user account has been deregistered from the vehicle
 - The account can now be connected to a different user

InControl Activation

To activate InControl, a user account must be created, connecting the vehicle hardware with the account. Activation is normally done prior to the vehicle being handed over to the customer, however, a quick start guide is available to assist a customer with self-activation.

The three main set up stages are:

- Registration
- Connection
- Activation

Key to E169309 on facing page

Item	Description	Item	Description
1	Telematics Control Unit (TCU)	13	GPS signal splitter
2	Engine Control Module (ECM)	14	3G Wi-Fi module
3	Restraints Control Module (RCM)	15	Microphone
4	Body Control Module/Gateway Module (BCM/GWM)	16	Audio Head Unit (AHU)
5	Telematics speaker	17	bCall switch signal
6	Wi-Fi signal – TCU internal antenna	18	eCall switch signal
7	GSM back-up signal – TCU internal antenna	19	RCM – crash signal
8	Ground	A	Hardwired
9	Fuse – located in Rear Junction Box (RJB)	AN	Powertrain HS CAN
10	Fuse – located in Battery Junction Box (BJB)	AO	Body MS CAN
11	Roof pod – GSM antenna	T	Coaxial
12	Roof pod – GPS antenna		

Telematics Control Diagram – InControl Touch Shown

