E60 - US Telematic Control Unit (TCU)

Installation location

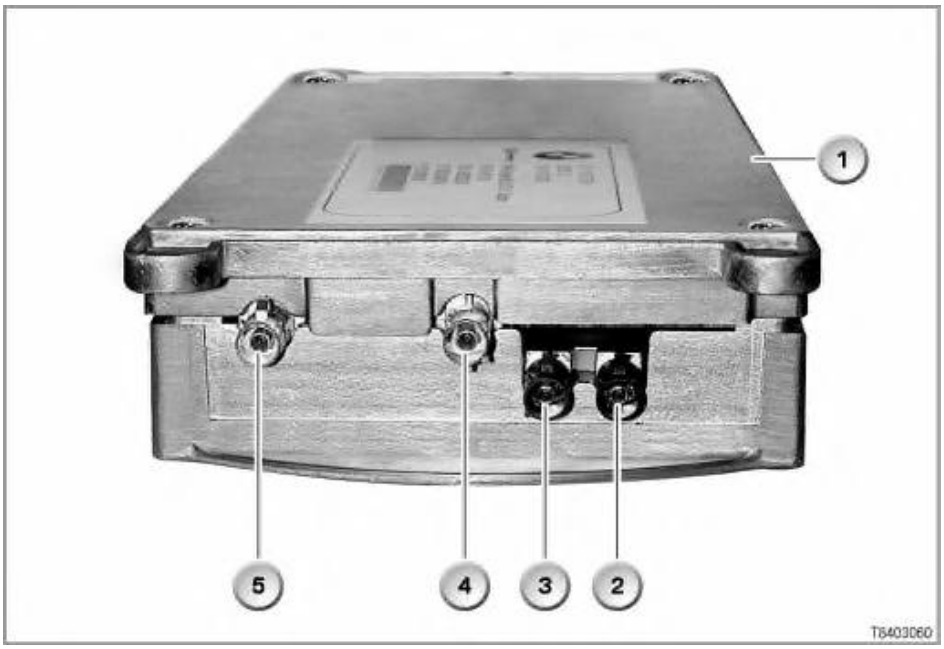
The TCU (Telematic Control Unit) is located on the left-hand side of the luggage compartment.

Construction

The TCU is of modular construction and is equipped with the following components:

- Transmitter/receiver module (NAD, Network Access Device)
- GPS receiver
- Aerial selector for telephone aerial 1 (CDMA/AMPS) and emergency antenna

The TCU has 4 aerial connections and a 54-pin connector.



Key	Explanation	Key	Explanation
1	Telematic Control Unit (TCU)	2	Aerial connection for telephone aerial 1 (CDMA/AMPS)
3	Aerial connection for emergency antenna	4	Aerial connection for GPS aerial
5	Aerial connection for subsequent retrofitting of a Bluetooth antenna (not assigned at present)		

A 54-pin connector creates the connection from the TCU to the vehicle electrical system.

Pin assignment, 54-pin multi-pin connector

Pin	Type	Description
1	A	Microphone, positive terminal
2	---	---
3	---	---
4	---	---
5	---	---

6	---	---
7	---	---
8	---	---
9	E	Low-frequency signal for switching voice transmission on/off
10	M	Low-frequency signal (earth) for switching voice transmission on/off
11	A	Low-frequency signal to mobile phone
12	---	---
13	---	---
14	---	---
15	E	Crash message from airbag control unit via Safety and Gateway Module (SGM)
16	V	Terminal 30, aux battery
17	V	Terminal 30g, power supply; due to pin load capacity, power supply is split between pins 17 and 18
18	V	Terminal 30g, power supply
19	M	Microphone earth
20	---	---
21	---	Screening for microphone
22	E	Signal "Motorola Phoenix V60i mobile phone locked in eject box"
23	---	---
24	E	ABSVL (signal from wheel speed sensor, front left)
25	E	ABSVR (signal from wheel speed sensor, front right)
26	---	---
27	---	---
28	---	---
29	A	Wired portable serial IF TxD (P2K data bus)
30	E	Wired portable serial IF RxD (P2K data bus)
31	E	Signal from emergency call button
32	A	Signal to switch battery charger in eject box on/off
33	A	MOST wake-up (signal to activate the MOST bus)
34	A	TEL_ON (compensator switch-on signal)
35	---	---
36	M	Terminal 31, earth
37	A	Low-frequency signal, loudspeaker failure, positive terminal
38	M	Low-frequency signal, emergency loudspeaker, earth
39	---	---

40	---	---
41	---	---
42	---	---
43	---	---
44	---	---
45	---	---
46	---	---
47	---	---
48	---	---
49	M	Low-frequency signal, P2K, earth
50	A	MAY-DAY LED
51	---	---
52	V	Terminal 58g (instrument lighting)
53	M	Terminal 31, aux battery, earth
54	M	Terminal 31, earth
	A = Output E = Input E/A = Input and output M = Earth V = Supply For current specifications regarding pin assignments, please refer to BMW diagnostic system	

How it works

The TCU installed as standard on the US version is connected to the vehicle's bus system via the MOST bus. The TCU is connected to the MOST bus via the 2-pin connector.
The 54-pin connector provides the connections to the vehicle electrical system, the eject box and the emergency call button.

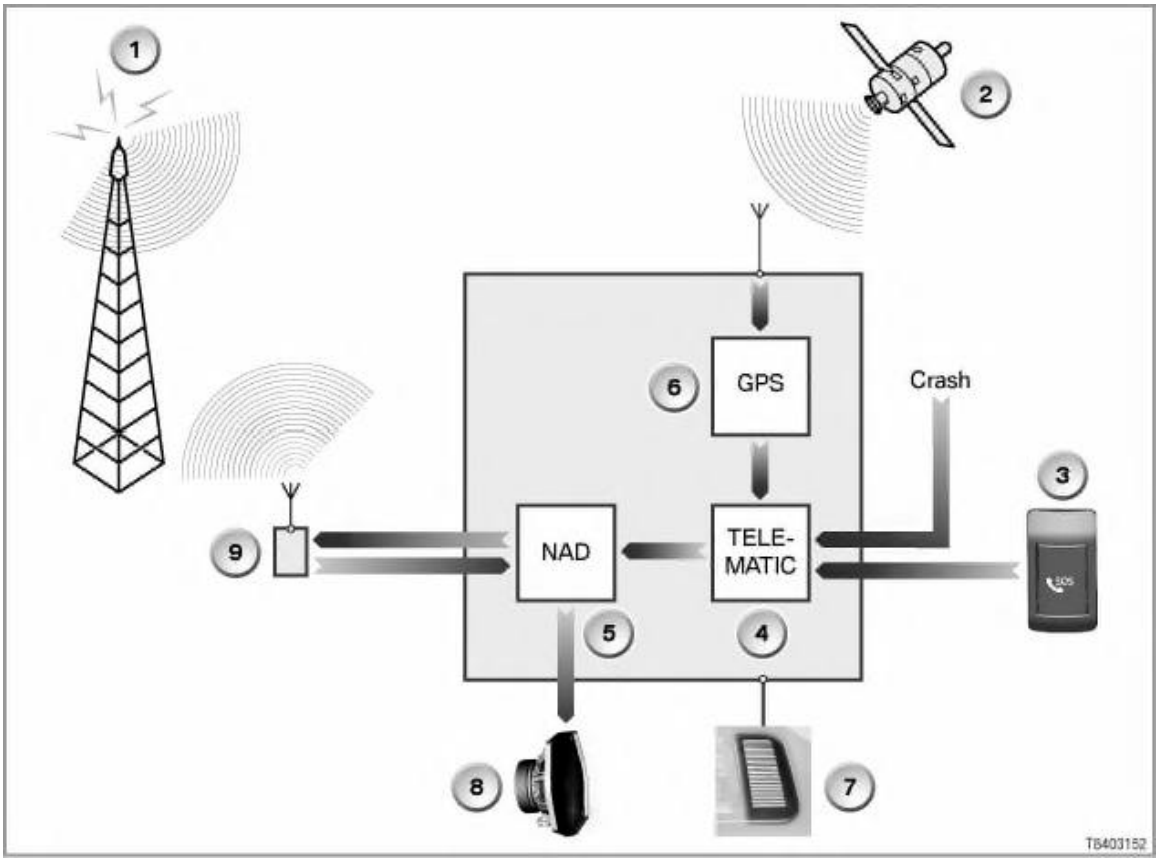
The TCU provides the following functions (with option 639):

- Telematic services

The TCU provides the following functions (with optional accessory 639):

- Hands-free mode
- Short Message Service (SMS) text messaging
- Voice recognition system

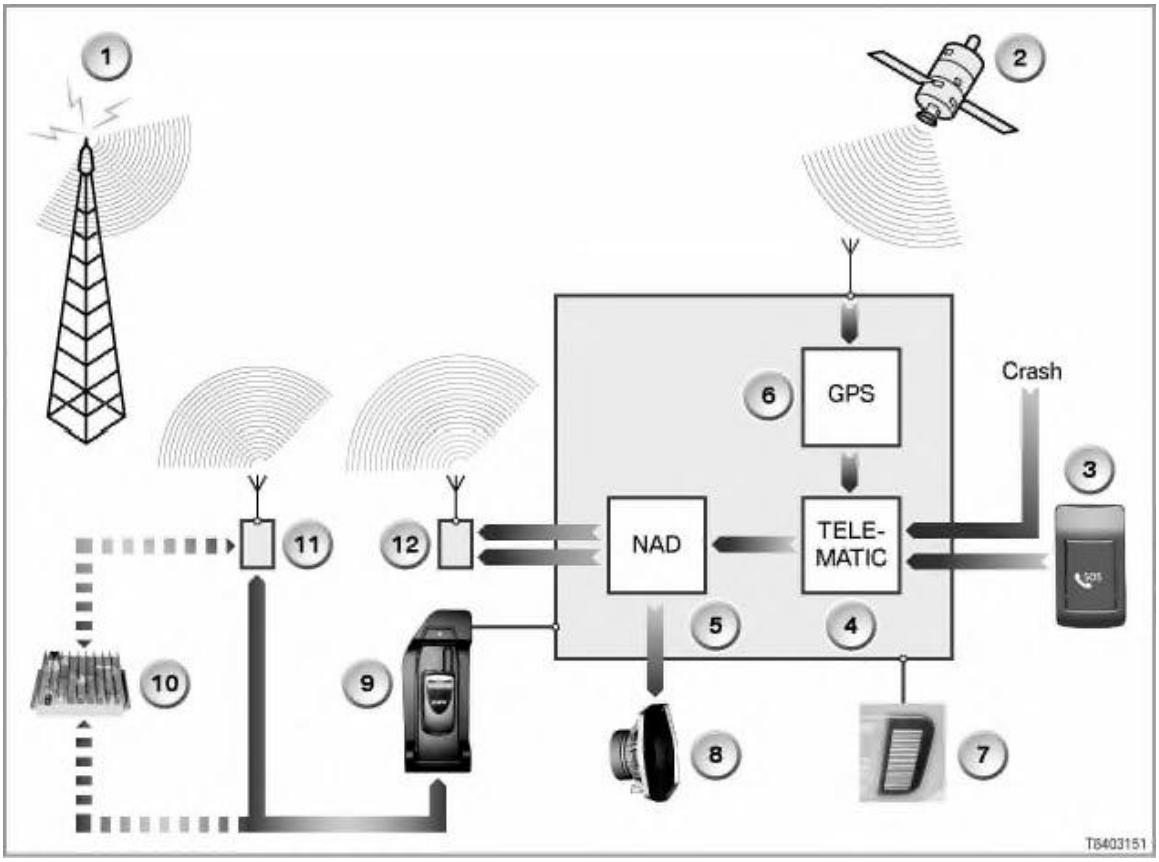
TCU with telematic services
The diagram below illustrates the signal path for the telematic services in conjunction with option 639 "Complete basic fittings USA/CDN".



Key	Explanation	Key	Explanation
1	Transmitter and receiver	2	GPS satellite
3	Emergency call button	4	Telematic services
5	Transmitter/receiver module (NAD, Network Access Device)	6	GPS receiver
7	Hands-free microphone	8	Emergency loudspeaker
9	Telephone aerial 1	Crash	Signal for automatic emergency call

TCU with telematic services and Motorola Phoenix V60i mobile phone

The diagram below illustrates the signal path for the telematic services and Motorola Phoenix V60i mobile phone in conjunction with option 639 "Complete basic fittings USA/CDN" and optional accessory 639.



Key	Explanation	Key	Explanation
1	Transmitter and receiver	2	GPS satellite
3	Emergency call button	4	Telematic services
5	Transmitter/receiver module (NAD, Network Access Device)	6	GPS receiver
7	Hands-free microphone	8	Emergency loudspeaker
9	Motorola Phoenix V60i mobile phone in eject box	10	Compensator (retrofit if customer so wishes)
11	Telephone aerial 2	12	Telephone aerial 1
Crash	Signal for automatic emergency call		