

● Multifunction Steering Wheel Retrofit

Model & year: 91-97 8-Series, U.S.

Expertise level: Beginner > Intermediate > Advanced

Date: May 12, 2011 (Updated: 8/6/11)

Estimated time to complete: 1-3 days

Tools Required

- Wiring supplies
- Other basic hand tools

Facilities Needed

- Garage (dry, secure work area)

Parts Required

- (1) BMW Multifunction Wheel, \$200-\$300 used, options below:



Standard 4-Spoke

9/96-3/99, E38/39
Wheel: 32 34 1 094 259
Airbag: 32 34 1 097 125

M 3-Spoke

9/97-3/99, E39
Wheel: 32 34 2 228 671
Airbag: 32 34 2 229 130

- (1) BMW I-Bus Radio (C33/C43/CD43), \$100-\$350 used, options below:



C33

standard '96-on, i-bus radio

C43

deletes WB, adds PTY/ RDS, higher output

CD43

deletes tape, adds CD (no mp3)

- (1) Slip Ring, p/n 32 34 1 094 261

For cruise functions:

- (1) Cruise Adaptor Module (see below) or,

for 840Ci only:

- (1) E38/39 Cruise Control Module, p/n 65 71 8 375 497, \$651.79 list
- (1) E38/39 Cruise Control Actuator, p/n 65 71 8 369 027, \$320.12 list

Getting Started

I've always admired modern multifunction steering wheels for their handsome convenience. Skeptical of their adaptability, I was convinced after reading online forums and learning about the inspiring work of a Swiss BMW enthusiast. I wish to thank E36 BimmerForum members *vlacki* and *bluebook*, E38 BimmerBoard member David Cecil and *04sshd*, and 8er.org founder Martin

Brügger, all of whom performed pioneering work from which I have drawn. Consequently, the procedures compiled here are applicable to *all* airbag equipped BMW's built since 1988!

STEERING WHEELS

Compatibility is achieved thru the exclusive use of slip ring 32 34 1 094 261 -- the key to this installation; used here and in all previous work on this subject. This 7-wire slip ring mates with single-stage airbag wheels used from 9/96 thru 3/99. This retrofit is easier for most BMW's from 1995-on, which use updated column switch brackets and airbag connectors. Earlier models are easily adaptable.

Note that some wheels have different multifunction switch block options. For example, the left switches for both wheel A and B may or may not include a radio/telephone button, while right switches for wheel A may include either wheel heater or HVAC recirculation buttons. Wheel B has no heat option. See info below:

[Heated Steering Wheel](#): To use the wheel A heater, you must use slip ring *262 with contact switch and matching wheel/airbag. See [this link](#) for details.



NOTE: Recirculation button function is unusable with 8-series. Switch blocks from 9/97 will have the correct on/off symbol for cruise functions (I/O vs. O). For options, see [RealOEM](#).

[The Multifunction Sport 3-Spoke](#): This popular wheel (from E46 thru 6/00, below left) is for column-mounted slip rings and is not directly compatible.



However, machining the base (above right) and pairing it with airbag 32 34 1 092 762 instead will allow use of the *261 slip ring.

RADIO CONTROLS

Full functionality is achieved by utilizing I-bus capable factory radios (C33, C43, or CD43) and extending the white I-bus output wire from the *261 slip ring to terminal 7 of the radio wiring harness. For those using aftermarket radios, check with the radio's manufacturer for adaptors.

For those who wish to use only radio controls with wheel B, install a right-side switch blank in place of the unused cruise switches (p/n 61 31 2 490 236).

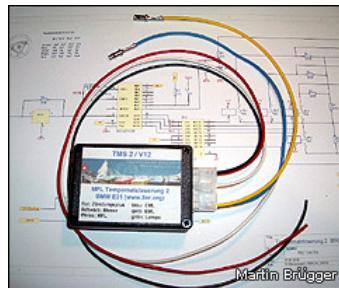
For those using factory CD changers, they will need to be replaced with newer I-bus capable units and data cables. See procedure below.

CRUISE CONTROLS

While adapting radio functions is simple, cruise functions are more involved. There are two possible approaches: 1) install an electronic adaptor which mimics cruise stalk output using wheel switch input, or 2) swap cruise control components for those which understand the wheel switches.

Elegant and efficient, use of an electronic adaptor should be preferred. Fortunately, such a device has already been developed. As of this writing, an adaptor module is available for purchase from Swiss electronics whiz and 8-series enthusiast Martin Brügger. Called the "TMS 2" module (Tempomatsteuerung 2), Martin's black box (developed around 2009, shown below) is professionally made and easy to install. Available for both V8 and V12, this module may be used with other BMW's such as the E32 and E34. It even includes provisions for a cluster annunciator light. Since Martin's installation instructions are written in German, I supplemented it with wiring diagrams. Details below:

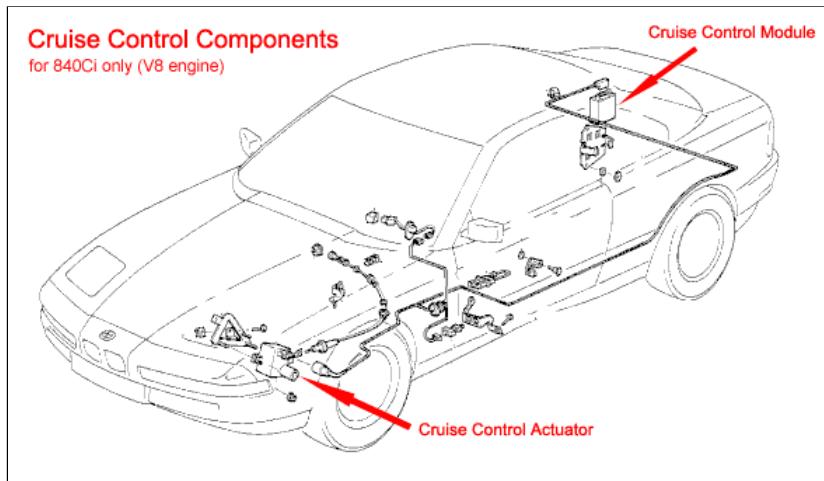
TMS 2 Module (Cruise Control Adaptor)



- **Contact:** [Martin Brügger](#) from [8er.org](#) (Switzerland)
- **Price:** 215 CHF (about \$238), price subject to change, exchange rate varies.
- **Details:** [Installation Instructions](#) - German PDF file by Martin Brügger
- **Supplements:** [V8 Wiring Diagram](#), [V12 Wiring Diagram](#) - by Frankie

Without a cruise adaptor module, swapping cruise components is your only option. But this works *only for the 840Ci* and its V8 engine. (All V12 models utilize circuitry integrated with the engine control unit.) Incidentally, 6-cylinder BMW's may also use this approach.

Compatibility is achieved by swapping in E38/39 cruise components, specifically the cruise module (GRII) and its related actuator with cable. Re-pinning the module's connector is required, along with an additional wire. See diagram below:



BMW used three different variations of cruise functions on the E38/39 with the most desirable being from 9/97-on. *Therefore cruise modules should be sourced from 740/540's built from 9/97.* New cruise modules require coding from the dealer, which is why used modules from V8 powered cars are needed. (6-cylinder cars may pull from the 528.) Unlike the cruise module, cruise actuators do not require coding and are the same from 9/96-on.

A wiring diagram including part numbers is available below. Note that since I used the module approach instead, this diagram is labeled "untested". But it is based on the successful work accomplished in the [E36 Bimmerforums](#).

- [E38/39 Cruise Control Retrofit for E31 \(840Ci\)](#) - by Frankie.

Sourcing parts from either a salvage yard or eBay will be the most cost effective. Procedures below.

Procedure

Steering Wheel

Follow my previously written [Steering Wheel Retrofit & Upgrade](#) using slip ring 32 34 1 094 261 instead. Supplemental instructions follow:

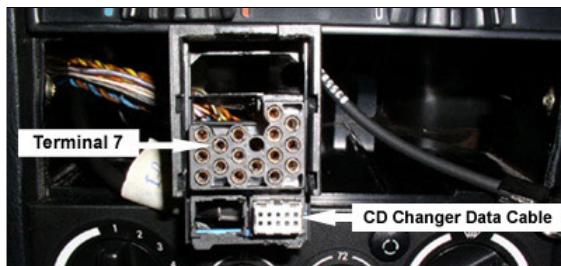
- Source all needed parts. Study appropriate diagrams and documents.
- Use appropriate wire connectors as a "best practice" and to facilitate later removal. These connectors may be sourced from salvage yards or purchased from a BMW dealer. For example, the image below illustrates using a proper female connector for the slip ring:



- The horn connection on the new *261 slip ring is located in the main (white) connector (pin 1, brown wire). It grounds either thru the TMS module (if used) or must be routed to the existing connector on the car. The blue wire (pin 6) is not used.

Radio

- Per the wiring diagram, extend the white wire from pin 4 of the slip ring to terminal 7 of the factory radio wiring harness. To use a CD changer as well, see [Factory-Look Audio Upgrades, Level 3 - Data Cable](#) for procedures.



- Again, source the needed wiring supplies for a proper installation. For example, use terminal [61 13 1 376 206](#) in the radio harness.

Cruise Control

- If using Martin's TMS 2 module, refer to his installation instructions for helpful images and a pin-out chart. See also my wiring diagram. For German translations, try [Google Translate](#). If using the module's panel annunciator light (not pre-wired), use a factory panel bulb (500mA max) with separate 12 v power. The module's pin 3 is a ground circuit. It operates by sending a ground signal to the bulb, lighting it only upon button press.
- If swapping cruise components, source all parts and review wiring diagram. Cruise actuators require the matching cable and electrical connector. Mounting hardware may be needed too. If possible, open and re-pin the module connector instead of cutting & splicing.
- Of course, with your new I-bus controls in place you may remove the cruise control stalk from the steering column.

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