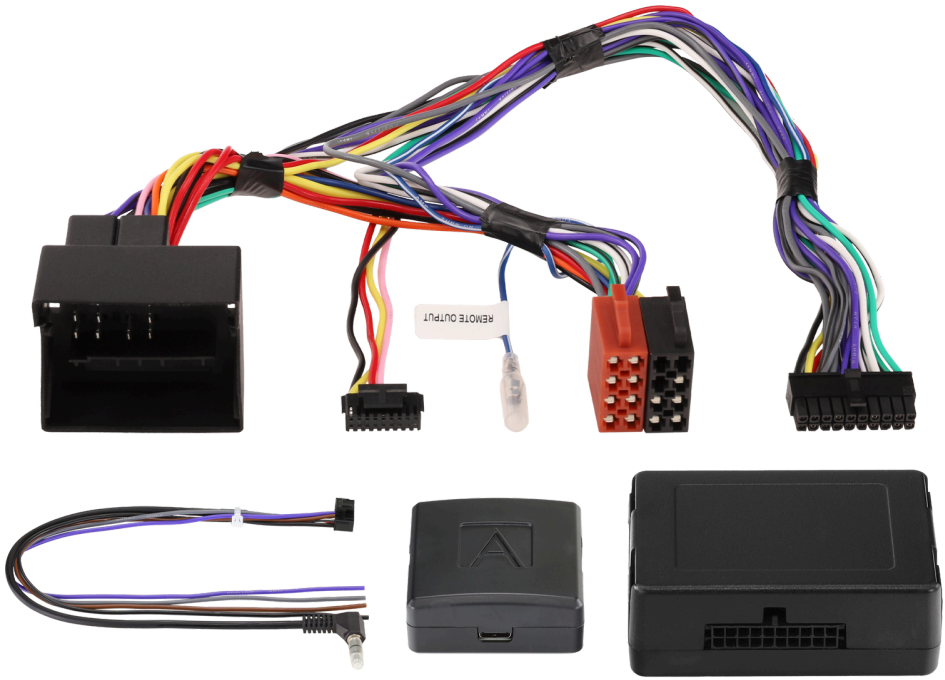
Aerpro
In-Car Tech Solutions

INSTALLATION GUIDE

SWBM9C

Steering Wheel Control Interface

For BMW vehicles



Retain steering wheel control functionality

Replace factory radio

Software updateable

OVERVIEW

Before you start

Vehicle application

BMW

3-Series (E46)	1998 - 2007
5-Series (E39)	1996 - 2004
X3 (E83)	2004 - 2010
X5 (E53)	2000 - 2006
Z4 (E85)	2002 - 2008
Mini (R50/R53)	2001 - 2006
Mini (R52)	2004 - 2008

For vehicles with Business OEM Head unit

40-Pin Quadlock Connector

Vehicles without Professional OEM Sat Nav

Vehicles with OEM amplified system

(without OEM Harman Kadon amplified system)

Key features

- Retain steering wheel control functionality
- Replace factory radio
- Software updateable
- Remappable buttons

The SWBM9C allows for the retention of the steering wheel controls as well as other vital features when installing an aftermarket unit into the vehicle. This interface features selectable dipswitches for dedicated applications, simply refer to the provided table for the correct configuration ensuring seamless integration.

Prior to installation

- Installation requires a certain level of technical knowledge.
- Prior to installation, it is important to read the manual.
- Select a location for installation that is dry and free from heat sources.
- It is essential to use the correct tools during installation to prevent any damage to the vehicle or the product itself.
- Please note that we cannot be held liable for any issues arising from improper installation.
- **Before proceeding with installation, disconnect the negative battery terminal and ensure the key is removed from the ignition.**

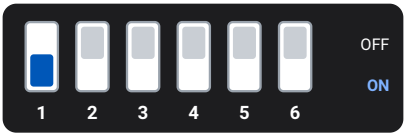
Installation at a glance

1. **Set**
   Set the dipswitches for your stereo brand (page 3)
2. **Connect**
   Remove the factory stereo and connect the interface (page 5)
3. **Test**
   Check the stereo and steering wheel controls (page 7)

STEP 1

Set the dipswitches

This interface includes a set of dipswitches. Consult the dipswitch selection guide to select the appropriate configuration. To activate a dipswitch, press it downward into the 'ON' position. Refer to the diagram for an example of the 'KENWOOD1' dipswitch configuration.



Example: Kenwood Type 1

MANUFACTURER	SYSTEM	DIP				CONNECTION
		1	2	3	4	
AERPRO TYPE 1	Analog	OFF	OFF	**ON**	OFF	3.5MM JACK PLUG
AERPRO TYPE 2	Learning	OFF	**ON**	**ON**	OFF	KEY 1 / KEY 2 / KEY GND WIRES
ALPINE TYPE 1	IR Data	OFF	**ON**	OFF	OFF	3.5MM JACK PLUG
ALPINE TYPE 2	Learning	OFF	**ON**	**ON**	OFF	KEY 1 / KEY 2 / KEY GND WIRES
ANALOG SINGLE WIRE	Learning	**ON**	**ON**	**ON**	OFF	BROWN SWC/IR WIRE
ANALOG SINGLE (EXTEND)	Learning	**ON**	**ON**	**ON**	**ON**	BROWN SWC/IR WIRE
BLAUPUNKT	Learning	**ON**	**ON**	**ON**	OFF	3.5MM JACK PLUG
CLARION	IR Data	**ON**	OFF	OFF	**ON**	3.5MM JACK PLUG
ESX	Learning	OFF	**ON**	**ON**	OFF	KEY 1 / KEY 2 / KEY GND WIRES
GRUNDIG	IR Data	OFF	**ON**	OFF	**ON**	BROWN SWC/IR WIRE
JBL	Learning	OFF	**ON**	**ON**	OFF	KEY 1 / KEY 2 / KEY GND WIRES
JVC	IR Data	OFF	OFF	**ON**	OFF	BROWN SWC/IR WIRE
KENWOOD TYPE 1	IR Data	**ON**	OFF	OFF	OFF	BROWN SWC/IR WIRE
KENWOOD TYPE 2	IR Data	**ON**	**ON**	OFF	OFF	BROWN SWC/IR WIRE
KEY 1 / KEY 2	Learning	OFF	**ON**	**ON**	OFF	KEY 1 / KEY 2 / KEY GND WIRES
KEY 1 / KEY 2 (EXTEND)	Learning	OFF	**ON**	**ON**	**ON**	KEY 1 / KEY 2 / KEY GND WIRES
PHILIPS	IR Data	OFF	**ON**	OFF	**ON**	BROWN SWC/IR WIRE
PIONEER TYPE 1	Analog	OFF	OFF	OFF	**ON**	3.5MM JACK PLUG
PIONEER TYPE 2	Analog	OFF	OFF	**ON**	**ON**	3.5MM JACK PLUG
SONY	Analog	**ON**	OFF	**ON**	**ON**	3.5MM JACK PLUG
ZENEC	IR Data	**ON**	**ON**	OFF	**ON**	BROWN SWC/IR WIRE

Shaded cells are ON. Find your stereo brand, then set the switches to match that row.

DIPSWITCH 5 & 6
Dipswitch 5 & 6 are reserved for vehicle specific configuration.

REFERENCE

Stereo modes and wiring

KEY1 and KEY2

KEY1 and KEY2 are specifically tailored for analog learning mode-style radios. Our SWC module is designed with a resistor chain that precisely matches the required resistance for seamless compatibility with this type of head unit.

KEY1 and KEY2 EXTEND

This mode extends every button press to 2 seconds during the learning process. However, with rolly wheel-designed steering wheel buttons, holding for 2 seconds isn't feasible. Our KEY1 and KEY2 extend feature addresses this by automatically prolonging each press, simplifying head unit programming even in such scenarios. Extend mode is not intended for normal use, it is only used in the teaching process.

ANALOG SINGLE WIRE and ANALOG SINGLE WIRE EXTEND

This function operates similarly to KEY1 and KEY2 but transmits all unique values through the IR SWC single wire. This is crucial for compatibility with learning-style head units featuring only one learning input wire. To ensure compatibility, we've incorporated this feature into our steering wheel control interface, ensuring seamless operation across various head unit setups. The Analog Extend mode functions identically to its counterpart within the KEY1 and KEY2 system but transmits through a single wire.

ISO connector wiring key

Purple	Right Rear Speaker +	**Purple/Black**	Right Rear Speaker -
Green	Left Rear Speaker +	**Green/Black**	Left Rear Speaker -
Grey	Right Front Speaker +	**Grey/Black**	Right Front Speaker -
White	Left Front Speaker +	**White/Black**	Left Front Speaker -
Yellow	Permanent 12V	**Black**	Ground
Red	Ignition 12V	**Orange**	Illumination

Flying wire wiring key

Pink	Speed Pulse - 0 to 12V Square Wave @ 1Hz/Kph	**Green**	Park Brake
Purple/White	Reverse Gear - 250mA	**Orange**	Illumination - 250mA
Red/White	Acc 12V - 250mA	**Yellow RCA**	Camera

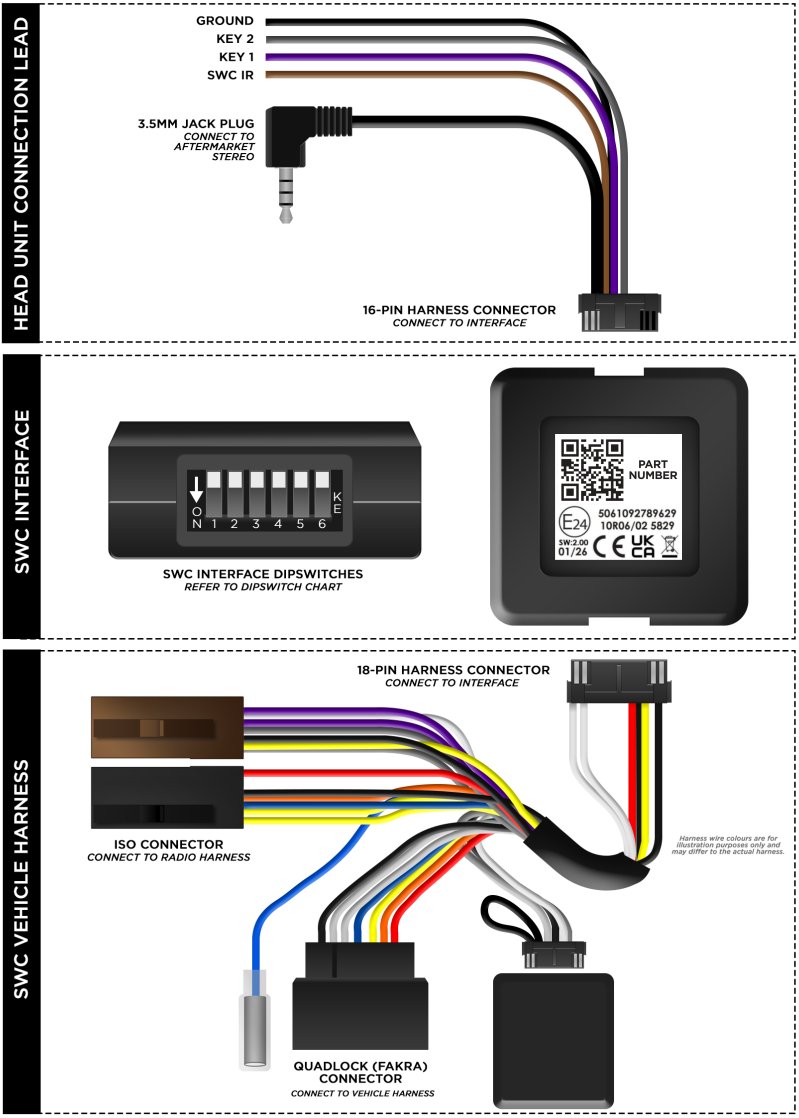
Outputs & ratings

Standby Current	Operating Voltage	Operating Temperature
<3mA	**6V to 16V**	**-20C to 85C**

*rated at 25 degrees Centigrade

STEP 2

Connect the interface



Before installation

Prior to installing the interface, it is essential to remove and disconnect the factory stereo. For guidance on this process, please refer to the vehicle owner's manual/handbook or seek assistance from a professional.

Installation

1. Take the interface, then connect the 16-PIN head unit connection lead and the 18-PIN steering wheel harness connectors to their respective ports.

2. Connect the head unit connection lead to the steering wheel remote input on the rear side of the aftermarket stereo. Connection methods vary based on the stereo brand, utilising either a 3.5mm jack connector SWC IR wire or wired inputs KEY1 and KEY2.

   For specific connection guidance, refer to your aftermarket stereo's installation manual if not clearly labelled on the stereo harness.

3. Connect the power/speaker ISO connector from the interface to the corresponding power/speaker ISO connection on the aftermarket stereo.

   For aftermarket stereos lacking an ISO connector, refer to the "Wiring Key" on page 4 for guidance on connecting wires. Certain interfaces may also include extra "flying" wires for additional functionalities such as parking brake trigger, reverse gear, and speed pulse. Further information on these wires is available in the "Flying Wire Wiring Key" section.

4. Connect the vehicle-specific connectors from the interface harness to the corresponding connectors on the vehicle harness.

5. Connect the flying wires on the harness to the rear of the stereo (if applicable).

6. Connect the antenna adapter to the vehicle's existing connection at the rear of the aftermarket stereo.

7. When installing an aftermarket reverse camera, connect the yellow RCA from the harness to the yellow RCA of the aftermarket camera. (If supported by the interface and vehicle)

8. When installing a DAB antenna, ensure to connect the DAB aerial connector to the rear of the new stereo.

9. After connecting all wires (along with any additional accessories), it's crucial to thoroughly test the stereo and steering wheel controls before reassembling the dashboard. If steering wheel controls are unresponsive, inspect connections and check dipswitch settings. Repeat the connection process if necessary, following the outlined steps.

STEP 3

Steering wheel controls



A Volume Up
B Volume Down
C Track Up
D Track Down
E Hang Up
F Pick Up (Short Press) / Voice (Long Press)

The provided diagram, while meticulously researched, serves as an example only. Actual steering wheel control configurations may vary dependant on each vehicle.

Test before you reassemble the dash

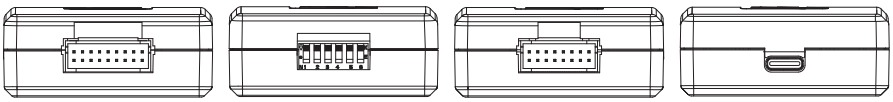
With everything connected, test the stereo and every steering wheel button before you put the dash back together.

Button remapping

The steering wheel buttons listed offer the flexibility of being re-configured or assigned dual functions. The availability of these buttons depends on the specific vehicle to which the interface is being installed and if the aftermarket radio supports them. In addition to button remapping, we offer the option to assign dual functions to each button on the steering wheel. This means that every button can be programmed to execute both a short press command and a long press command. You can also add your own bespoke configuration. Button configuration can be done by PC, MAC and smart phone via the USB port.

Button Remapping instructions can be found in a separate guide on our website.

SWC interface



18 PIN HARNESS CONNECTOR | DIPSWITCHES | 16-PIN HEAD UNIT CONNECTION LEAD | USB-C

Technical support

If you need assistance setting up or using your Aerpro product now or in the future, call Aerpro Support Australia.

03 8587 8889

Mon to Fri, 9am to 5pm AEST. If you would like to download a digital copy of this manual, or other Aerpro manuals/software, please visit aerpro.com