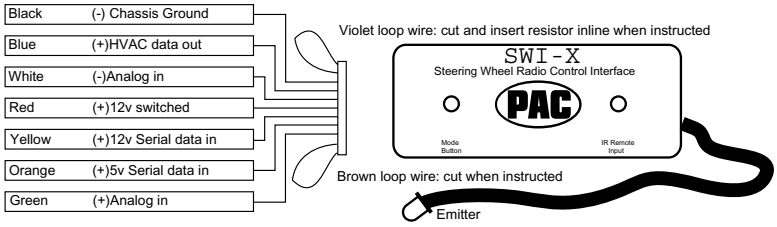
SWI-X

Universal Steering Wheel Radio Control Interface Installation Instructions

The Universal Steering Wheel Interface (**SWI-X**) will control most aftermarket head units with an infrared remote[1] by utilizing the factory steering wheel radio control buttons (**SWC**). The SWI-X has non-volatile memory which can store from between 1 to 12 functions from the steering wheel and wireless remote.



1. Installation

Step 1.

BLACK (-) chassis ground input: Connect this to the vehicle chassis ground.

Step 2.

RED (+) switched power input: Connect to a fused, accessory 12 volt source.

Step 3.

Cross reference your make and model car on the Version Chart (page 4) to determine which steering wheel control (SWC) input wire to use on the SWI-X and the location of the vehicle's SWC wire. **Only ONE input wire on the SWI-X can be used during operation. The other inputs not being used must be insulated separately to avoid damaging the SWI-X.** Please verify you have the correct vehicle's SWC wire with a volt/ohm meter as indicated below before connecting it to the SWI-X.

Remember as instructed above, only 1 of 4 of these wires will be used.

GREEN (+) SWC input: Connect this to the factory SWC wire that measures approximately 12 volts when each button is pressed. With no buttons pressed, the wire should read 0 volts. DO NOT connect directly to a 12 volt wire that does not go to 0 volts when the buttons are released. Make measurements with factory stereo removed and ignition on.

WHITE (-) SWC input: Connect this to the factory SWC wire that measures a different ***resistance*** to chassis ground when each button is pressed. DO NOT connect directly to 12 volts. Make measurements with factory stereo removed and ignition on.

YELLOW (+12 volts serial data[2]) SWC input: Locate a 12 volt wire that fluctuates in voltage (about 1 or 2 volts) when each button is pressed. In some cases, you will need the factory radio plugged into the factory harness in order to locate the SWC wire. Make measurements with ignition on.

ORANGE (+5 volts serial data[2]) SWC input: Locate a 5 volt wire that fluctuates in voltage (about 1 or 2 volts) when each button is pressed. In some cases, you will need the factory radio plugged into the factory harness in order to locate the SWC wire. DO NOT connect directly to 12 volts. Make measurements with ignition on.

Step 4.

BLUE (+12 volt serial data) Fan/Heater control output: ***For General Motors vehicles with heater/air controls only. This wire is not needed for Cadillacs, Envoy, and Bravada with heater controls. All other vehicles skip to step 5.*** Connect to factory dark green wire in pin# E1 of GM 32 pin connector to regain control of factory Fan/Heater controls from steering wheel buttons. Program SWI-X for 'Version 4'.

Step 5.

BROWN loop wire: Cut wire in half and insulate when instructed to do so on the version chart or vehicle notes.

VIOLET loop wire: Cut wire in half and insert resistor in line or insulate seperately when instructed to do so on the version chart or vehicle notes.

2. Programming IR mode and Version Number

****** Please read steps 1 through 5 prior to programming the SWI-X due to time critical steps. Do not mount the IR LED at this time. Wait until the SWI-X is programmed and operation is verified. ******

Programming an '*IR Mode*' and 'Version Number' for the SWI-X, which will set itself to a specific Make/Model car: After terminating the red, black and SWC input wires, the SWI-X is ready to be programmed with a 'IR Mode' and 'Version Number'. Listed along with the Version Chart (page 4) is a list of known stereos that need to have *'IR Extended Mode'* selected during programming. Programming a 'Version Number' will set the SWI-X to your specific vehicle and will select the correct SWC input wire.

Go to step 1 in next section 'Programming Radio Commands' if the 'IR Mode' and 'Version Number' is already programmed.

1) While holding the 'Program Mode' button in, turn on the ignition. At this point, both LED's should be on. Release the 'Program Mode' button and both LED's will turn off. This will erase any previous 'Version Number' stored in memory from factory.
2) Both LED's will then light up and stay on for 3 seconds. Press the 'Program Mode' button within the 3 seconds to turn on *'IR Extended Mode'*, both LED's will turn off. To select 'IR Standard Mode', do not press the 'Program Mode' button and wait for both LED's to turn off after the 3 seconds.
3) Now program the 'Version Number' by pressing the program button the amount of times according to the Version Chart (e.g. , if you need to program for 'Version 3', press the 'Program Button' 3 times). The LED's will flash each time you press and release the program button. Do not hesitate for more than 3 seconds between each button press. When finished, wait 3 seconds and the SWI-X will flash the right LED (x) amount of times telling you what 'Version Number' it is programmed with. If the 'Version Number' is 10 or greater, the left LED will flash for the **tens** place and the right LED will flash for the **ones** place. If the LED's do not flash or they flash alternately, you will have to go back to step 1.
4) Once programmed, the SWI-X will keep the 'IR Mode' and 'Version Number' in memory. If you accidently programmed the wrong 'IR mode' or 'Version Number', turn off the ignition and go back to step 1.
5) Turn off the ignition and go to 'Programming Radio Commands' section.

[1] The SWI-X will only work with remotes that use a 38 kHz to 40 kHz carrier frequency. Please consult with the owner's manual or manufacture of the device to determine if the remote is compatible with the SWI-X. ***Please check Version Chart (page 4) for known units that are not compatible with the SWI-X.***

[2] Because of the different types of serial data baud rates from the steering wheel buttons and the different types of IR remote data pattern, some stereos may respond very well, while others may not. You may try programming in 'Extended IR Mode' or in 'Standard IR Mode'. This may or may not help in response from the stereo.

3. Programming Radio Commands

Programming the SWI-X to control the new aftermarket head unit: First check that the IR remote that was supplied with the new head unit works properly. If the remote does not properly control the head unit, the interface cannot be programmed. Weak batteries in the remote may cause programming errors, even if the remote seems to operate the stereo properly.

The SWI-X must be programmed with a version number before you can access these programming steps. If it is not already programmed with a version number, go to step 1, in 'Programming IR mode and Version Number'.

1) Turn on the ignition to supply power to the SWI-X. The SWI-X will flash the right LED (x) amount of times telling you what 'Version Number' it is programmed with. If the 'Version Number' is 10 or greater, the left LED will flash for the **tens** place and the right LED will flash for the **ones** place. If the LED does not flash, you will have to go to step A in the previous section.

If you are programming for 'Version 4' do steps 2.0 to 2.4. All other versions go to step 3.

2.0) Press the 'Program Mode' button to enter Heater/Air control programming mode. Release the program button when left LED light comes on.

2.1) Press and hold the **TEMP UP** steering wheel function button. When the left LED turns off release the steering wheel button.

2.2) The left LED will turn on again, press and hold the **TEMP DOWN** steering wheel function button. When the left LED turns off release the steering wheel button.

2.3) If the vehicle has **FAN UP** and **FAN DOWN** buttons, repeat steps 2.1 and 2.2 above but substitute the **TEMP** buttons with **FAN UP** and **FAN DOWN** buttons. After the fourth button for the Heater/Air controls is programmed, the left LED will flash once and then stay on to indicate it is ready to "learn" the radio functions. **Go to step 4.**

2.4) If the vehicle does not have **FAN** speed buttons, press the "Program Mode" button on the SWI-X. This will cause the interface to move to the radio function program mode. The left LED will flash once and then stay on to indicate it is ready to "learn" the radio functions. **Go to step 4.**

3) Press the 'Program Mode' button to enter radio command programming mode. Release the program button when left LED light comes on.

4) Within 10 seconds, press and hold one of the steering wheel function buttons. **CONTINUE** to hold the steering wheel button **UNTIL** the left LED turns off. Release the steering wheel button and the right LED will turn on. **Note:** pressing the steering wheel button and releasing it to quickly will cause the SWI-X to send an IR command during run time. Wait untill the left LED turns off before releasing the button.

5) Hold the stereo's IR remote control 3-4" from the 'IR input' port on the side of the SWI-X and press the corresponding function button. Continue to hold the remote's button until the right LED turns off. Release the button and the left LED will turn on. **Note:** on some IR remotes like Alpine with the rotary volume knob, be sure to turn the knob one click only during programming.

Note: If the IR remote does not have a function that the steering wheel button has, you may assign any other IR command to that steering wheel button.

6) Repeat **steps 4 and 5** until all radio steering wheel functions are programmed.

7) When programming is complete, wait 7 seconds and both LED's will flash 3 times. This indicates an automatic program exit. Do not stop more than 7 seconds while programming or there will be an automatic program exit and you will have to start over at step number 1 above. **Do not** turn off ignition before the automatic exit or you will be required to start over at step 1 above.

NOTE:

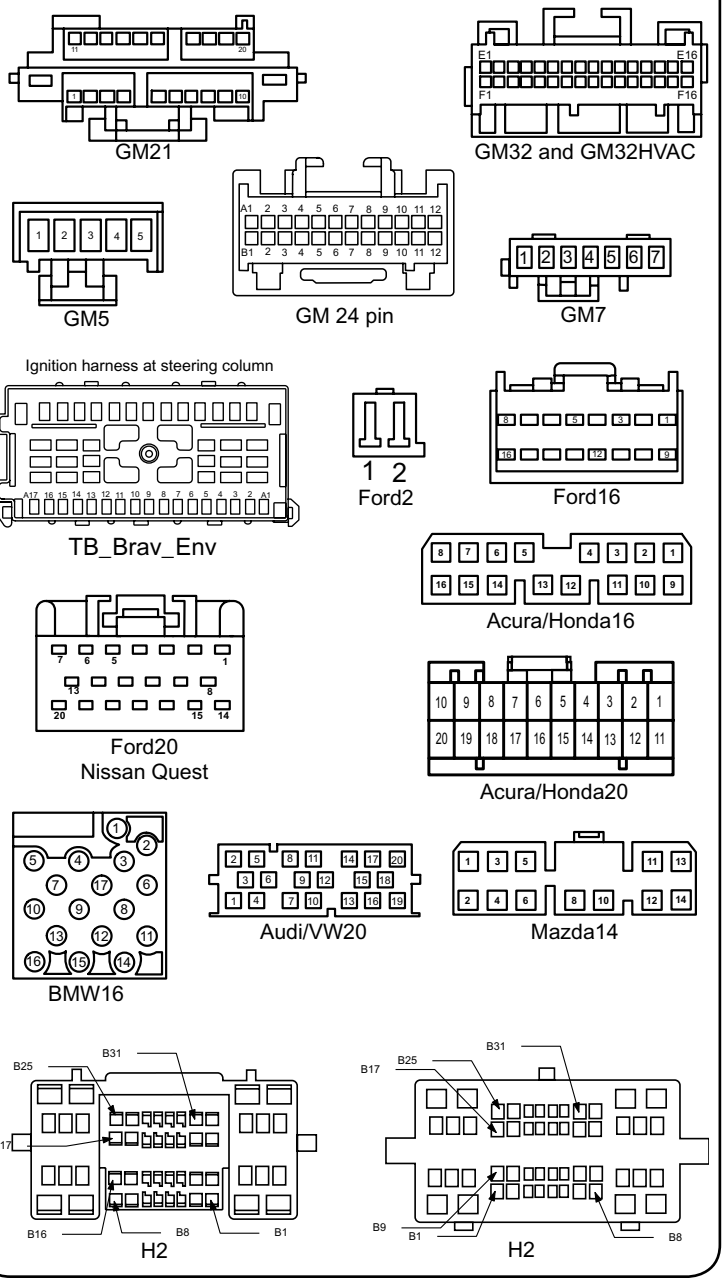
- Turn off fluorescent drop lights in vehicle during programming.
- The right LED will blink indicating that it is sending an IR command when a button is pressed on steering wheel.
- FAQ and bulletins can be found on our website.
- Instructions are constantly being updated, so be sure you download the most current instructions. Revised date can be found on bottom left corner of 1st page.

4. Final testing and installation of the SWI-X

Test the SWI-X by holding it's IR LED (Blue LED on the end of 4' lead) close to the stereo and verify that it works properly. After verifying the steering wheel control buttons control the aftermarket stereo, experiment with various locations for mounting the IR LED. The IR LED needs to be mounted in line of sight of stereo. Try along the top front and /or bottom of the stereo as well as it's sides. You can try mounting locations like the center console, overhead console or behind the dome light lens. Verify that the stereo can still be controlled from the IR LED from its ideal mounting location. The IR LED comes with a black mounting bezel which can be removed from the LED. After drilling a hole the same diameter of the bezel (bezel diameter may vary) in the location to be mounted, push the LED through the hole from behind. Snap the bezel back onto the LED and snap the bezel into the hole.

The IR LED can be replaced with most common IR LED, like Radio Shack's # 276-143. The longest lead of the IR LED connects to the red wire of the 4' cable and the short lead of the IR LED connects to the black wire of the 4' cable.

Front view of plugs removed from the back of radio.



Vehicle Wire Color and Pin Location

Locate your vehicle plug from page 2 and use this page to find the SWC pin location and available wire color. Some plugs may not be shown, so you will have to refer to vehicle notes only. Once you find your plug, read the notes for that specific plug below. All SWC wires can be located at the factory plug behind the radio, unless instructed to find else where.

Example; If your vehicle is a GM that uses a 21 pin connector, your plug will be the GM21. Refer to the GM21 notes below.

General Motors

GM5: Pin# 1, org/blk wire.

GM7: Pin# 6 or 7, green wire. In some vehicles the location of the wire will be in a 15 pin connector.

GM21: Pin# 14 or 13 , dark blue or light green wire, newer 2002 vehicles might be purple/blk. In some early 1990's vehicles, the wire maybe in a separate 7 pin connector. If doing front and rear controls, tie both pin# 14 and 13 together and connect to SWI-X, connect pin #12 pink or purple to 12v accessory. **Note:** In most SUV's, the factory amplifier supplies power to the steering wheel buttons.

GM24: Pin# A7 blue wire, connect to green wire of SWI-X. Pin# A6 pink wire or purple wire, connect to 12v accessory. If factory radio is relocated, be sure that the blue and pink wires are not connected to the factory radio.

If the vehicle is a 2002 Trail Blazer, Bravada or Envoy, please refer to **TB_Brav_Env** notes.

GM32: Pin location E5, dark blue or light green. In some vehicles this wire maybe in location E6 or E16.

GM32HVAC: Locate light green wire in pin# E5 (in some vehicles, pin# E6) and connect to green wire of SWI-X. Locate dark green wire in pin# E1 and connect to blue wire of SWI-X. Note: For some Buick vehicles, the light green and dark green wires maybe in a separate 7 pin connector.

H2: The main ignition harness underneath the dash at steering column may come in one of two designs as shown. Connect SWI-X to the Lt. green wire in B31. Cut brown loop wire on SWI-X and insulate. Do not use orange wire on SWI-X. The SWC wire will rest at zero volts and will vary in voltage for each button up to 5 volts.

TB_Brav_Env: Locate 17 pin plug (part of main ignition harness underneath dash at steering column), connect SWI-X to the Lt. green wire in A12. Cut brown loop wire on SWI-X and insulate. Do not use orange wire on SWI-X. The SWC wire will rest at zero volts and will vary in voltage for each button up to 5 volts.

Cadillacs (except Catera and Escalade): Locate 40 pin connector on left side of the steering column below the dash. Connect SWI-X green wire to the dark blue or lt. green wire in D8. If the Cadillac has HVAC controls, cut the brown loop wire on the SWI-X and insulate. Program for 'Version 1'. Do not use orange wire on SWI-X. The SWC wire will rest at zero volts and will vary in voltage for each button up to 5 volts.

Chrysler

Chrysler, Dodge and Jeep Vehicles: You must intercept the SWC wire at the steering column and **NOT** at the radio harness plug. Remove the steering wheel column cover around the ignition key cylinder and locate wire in white or gray plug.

1999-2002 Grand Cherokee: red/yel wire. **2000 Prowler:** red/blue wire. **1999-2000 Ram/Dakota/ Durango:** red/blk wire. **1999 Town & Country:** red/blk wire. **2001-2002 Ram/Dakota/Durango/Caravan/300M:** gry/wht wire. **2002 Jeep Liberty:** red/blu wire **2003 Dodge Ram:** gray/wht.

IMPORTANT!

1999 and newer vehicles: First verify that you have the correct wire with a volt meter. Voltage readings should vary between 0-5v for each button pressed. You **must cut** the wire in half after the correct wire is identified. Attach the SWI-X white wire to the SWC wire coming from the white or gray plug.

1992 - 1998 All vehicles: These vehicles have been confirmed to always be a **blk/org** wire. Cut blk/org wire in half and connect SWI-X green wire to the SWC wire coming from the white plug.

Insulate remaining wire going down into the dash. **Do not** use the orange wire on the SWI-X.

Ford

Ford2: Pin# 2. Wire color maybe tan, pink/wht, Lt. blu/red or Lt. blu/blk

Ford16: Connect Lt. grn/blk (pin# 3 or pin# 5) to 12 volts accessory. This supplies power to buttons on steering wheel or rear controls. Connect Lt. blu/pink (pin# 16 or pin# 12) to orange wire of SWI-X.

Ford20: Pin# 15 or 14, Lt. blu/red or yel.

Ford_Dual: Vehicles with both steering wheel and rear controls. 2 separate interfaces are required if both front and rear controls need to be used together.

Front steering wheel = Version 3: **Ford20**, connect pin# 15 or 14, Lt.blu/red or yel to white wire of SWI-X.

Rear center console = Version 6: **Ford20**, Connect pin# 5 to 12 volts accessory. This supplies power to the rear controls. Connect pin# 6 to orange wire of SWI-X.

Imports/Misc.

Acura/Honda16: Pin# 12, wht/blu. **Note:** If you have problems with the SWI-X sending an infrared signal when the steering wheel is rotated, program for version #12 (this is usually for late 80's and early 90's vehicles).

Acura/Honda20: Pin# 3, grn/red.

Audi/VW20: Pin# 11, Audi - wht/yel. VW - color varies.

BMW16: 97-99 Connect SWI-X to pin# 7. *2000-01 you will need to cut the wire at the steering wheel column and connect the SWI-X's yellow wire to the steering wheel side. Wire colors vary, please verify wire in steering wheel column with the wire in pin# 7 of factory plug. Note: Cars with factory activated cellular phones are not supported at this time. Some 97-99 vehicles may have to be interfaced at the steering wheel column like the 2000-2001 vehicles. When you first turn on the car, the steering wheel is constantly sending data, you must wait 10 seconds before going into programming radio commands.

Harley_Davidson: Download wiring diagram from website or have one faxed.

Jaguar20: Locate purple/yel wire on factory 20 pin plug. Cut purple loop wire on SWI-X and connect 1500 ohm resistor in line of purple wires.

Mazda14: Pin# 8

MINI: color of wire - wht/red-yellow dots. You will need to locate and cut the SWC wire at the steering wheel column and connect the SWI-X's yellow wire to the SWC wire coming from the steering wheel side.

Mitsubishi6: Locate yel/wht wire in separate 6 pin plug from factory radio.

Mitsubishi8: Locate 8 pin plug and connect grn/blk wire to ground and grn/org wire to SWI-X white wire.

Nissan (excluding 1999-2000 Quest) These vehicles have a separate wire (except vehicles below) for each button and do not have a resistor in line. When testing for these wires, each button will show close to zero ohms for each respected wire. Locate a separate plug with these wires and connect a resistor to each wire starting with the lowest value first. Connect all resistor remaining leads together to the SWI-X white wire.

2001 Maxima: brn/wht, grn/blk, yel/red, blu/yel, red.

2002 Maxima, Pathfinder Altima and Infinity QX4: Connect a 150 ohm resistor on the (**Maxima/Pathfinder/QX4 - blu/yel**) (**Altima - green**) wire and a 47 ohm resistor on the (**Maxima/Pathfinder - red**) (**Altima - red/wht**) **(QX4 - grn/blk)** wire. Connect remaining end of resistors to the white wire of the SWI-X. Connect the (**Maxima/Pathfinder/QX4 - brn/wht**) (**Altima - blue**) wire to chassis ground.

2000-2002 Xterra, Frontier: On separate plug, ground yel/blk wire and connect yel/red wire to SWI-X.

Land Rover: Locate 2 wires from steering wheel control buttons that plugged into factory radio. Normally they are gray/red & gray/black. Connect the gray/black to chassis ground and the gray/red to the white wire of the SWI-X.

2002 Freelander: connect blk/red to ground and blk/wht to SWI-X white wire.

1998 Discovery: On brown plug, connect black wire to ground. Connect a 47,150, 560 and 1k ohm resistor to the blue, brn/yel, blue/grn and red in any order. Connect remaining ends to the SWI-X white wire.

S2000: On **Acura/Honda20** plug Connect pin# 3 to the white wire of the SWI-X. The mute button supplies 12v on a yel/blu wire in pin# 14 and latches on and off. ***Do not connect this to the SWI-X.*** If the aftermarket stereo has a "mute" input, use a relay to invert the yel/blu wire to a negative output and connect to the mute input of the stereo. If the mode button on the dash does not work properly, connect a 3.6k to 4k ohm resistor across the white and black wire of the SWI-X and re-program.

Saab: Tap into yel/blk wire in 22 pin connector of the SID display module. Cut violet loop wire in half on SWI-X and insulate seperately. **Note:** If the left LED turns on and immediately turns off when you press the 'Mode' button to program radio commands, then program the SWI-X for version #11.

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MAKE	MODEL	YEAR	VERSION	SWI-X wire color	Vehicle SWC wire color and plug (if applicable), see notes on page 3
GMC/ Chevy/ Oldsmobile/ Pontiac/ Buick and Hummer	All models **w/ air bag, no heater controls**	1992-2002	**1**	**Green**	notes: **GM21** or **GM24** or **GM32**
	Trail Blazer, Bravada, Envoy	2002-2003	**1**	**Green**	notes: **TB_Brav_Env**
	Hummer H2	2002-2003	**1**	**Green**	notes: **H2**
	All suv's and trucks	2003	**1**	**Green**	notes: **H2**
	All models **w/ air bag, with heater controls**	1992-2002	**4**	**Green and Blue**	Connect **GM32HVAC,** pin E5 or E6 (lt/grn) to SWI-X green wire. Connect **GM32HVAC**, pin E1 (drk/grn) to SWI-X blue wire.
Pontiac, Oldsmobile, and Buick	All models, no air bag (except '89 GTA/Firebird)	1989-93	**10**	**Yellow**	**GM7**, pin# 6 or 7, green wire. Or in some vehicles, 15 pin connector.
	All Pontiac's, no air bag, and '89 GTA/Firebird	1987-88	**7**	**Orange**	**GM5**, pin#1, org/blk
Cadillac	Catera	1998-2001	**3**	**White**	**GM32**, blu/red
	Escalade	1999-2003	**1**	**Green**	notes: **GM21** or **GM24** or **GM32**
	All Cadillacs (except Catera, Escalade)	1992-2002	**1**	**Green**	notes: **Cadillacs**
Chrysler/ Dodge and Jeep	All models	1992-98	**2**	**Green**	notes: **Chrysler**
	All models	1999-2003	**8**	**White**	notes: **Chrysler**
	Dodge Stealth	All	**5**	**Yellow**	**Mitsubishi7**, separate 6 pin plug, yel/wht
Ford/ Lincoln and Mercury	Aerostar	1996-97	**5**	**Yellow**	**Ford2,** pin#2, wire color can be tan, pink/wht, lt. blu/red or lt. blu/blk
	Continental	1998-2002	**3**	**White**	**Ford20**, pin#15 or 14, lt. Blu/red
	Crown Victoria	1998-2002	**3**	**White**	**Ford20**, pin#15 or 14, lt. Blu/red
	Econoline	1994-96	**5**	**Yellow**	**Ford2,** pin#2, wire color can be tan, pink/wht, lt. blu/red or lt. blu/blk
	Expedition (rear controls), Excursion	1998-2002	**3,6**	**White,Orange**	notes: **Ford_Dual**
	Explorer	1995-97	**6**	**Orange**	notes: **Ford16**
	Explorer	1998-2002	**3,6**	**White,Orange**	notes: **Ford_Dual**
	Lincoln LS	2000-2002	**3**	**White**	**Ford20**, pin#15 or 14, lt. Blu/red
	Mountaineer	1998-2002	**3,6**	**White,Orange**	notes: **Ford_Dual**
	Navigator	1997-98	**6**	**Orange**	notes: **Ford16**
	Navigator	1999-2003	**3,6**	**White,Orange**	notes: **Ford_Dual**
	Taurus/Sable (dash mount controls)	1992-95	**5**	**Yellow**	**Ford2,** pin#2, wire color can be tan, pink/wht, lt. blu/red or lt. blu/blk
	Town Car, Grand Marquis	1998-2002	**3**	**White**	**Ford20**, pin#15 or 14, lt. Blu/red
	Town Car, Grand Marquis	1996-97	**6**	**Orange**	notes: **Ford16**
	Windstar/ Villager	1993-98	**5**	**Yellow**	**Ford2,** pin#2, wire color can be tan, pink/wht, lt. blu/red or lt. blu/blk
	Windstar/ Villager	1999-2002	**3,6**	**White,Orange**	notes: **Ford20**
Acura/Honda	All models	All	**3**	**White**	**Acura/Honda16,** pin#12, wht/blu. **Acura/Honda20**, pin# 3
Acura/Honda	S2000	2000-2002	**3**	**White**	notes: **S2000**
Audi	A6	2000	**7**	**Orange**	**Audi/VW20**, pin#11, wht/yel
BMW	All models	1997-2002	**5**	**Yellow**	notes: **BMW16**
Harley Davidson	All models	All	**3**	**White**	notes: **Harley_Davidson**
Infinity	QX4	2002	**3**	**White**	notes: **Nissan**
Jaguar	XJR, XK8	1999	**9**	**White**	notes: **Jaguar20**
	S Type	2001	**3**	**White**	wht/blk wire in 17 pin black plug
Mazda	All models	All	**3**	**White**	**Mazda14**, pin# 8
MINI	Cooper S	2002	**5**	**Yellow**	notes:**MINI**
Mitsubishi	All models	All-2001	**5**	**Yellow**	**Mitsubishi6**, separate 6 pin plug, yel/wht
	Eclipse	2002-2003	**8**	**White**	notes: **Mitsubishi8**
Nissan	All models except below	All-2001	**3**	**White**	notes: **Nissan**
	Maxima, Altima, Pathfinder	2002	**3**	**White**	notes: **Nissan**
	Quest	1999-2000	**3**	**White**	**Ford20**, pin#14, wht/blk
	Xterra, Frontier	2000-2002	**3**	**White**	Separate plug, ground yel/blk wire and connect yel/red wire to SWI-X.
	300ZX	ALL	**3**	**White**	300ZX's with cruise control cannot be interfaced. notes: **Nissan**
	Nissan Quest	1993-95	**5**	**Yellow**	**Ford2,** pin#2, wire color can be tan, pink/wht, lt. blu/red or lt. blu/blk
Land Rover	All models	All	**8**	**White**	notes: **Land Rover**
Saab	9-3	1998	**9**	**White**	notes: **Saab**
Volkswagen	Jetta, Passat, Golf, GTI	2001	**7**	**Orange**	**Audi/VW20**, pin#11

Mercedes and Toyota vehicles are not supported.

IR Extended mode headunits: Pioneer AVX-P7300DVD, AVXP7000CD, AVXP7000, AVMP7000R, AVMP8000R, AVMP9000R, GEXP7000TV, all Rockford Fosgate head units

Headunits currently not supported: Sony CDX-MP70, CDX-CA900X, MEX-5DI, MEX-1HD, CDX-M730, CDX-M770, CDX-M620, CDX-M670, CDX-CA850X, CDX-CA860X