FN_Volvo2014 interface + NAVI installation manual _v20140130

2014-Volvo , the Blue connector behind CD is used for video insertion

This interface with internal navigation module can insert High definition navigation picture+ 2AV and 1 reverse camera video into the 2014 Volvo screens, the following are the features.

✓ Interface with internal navigation module and plug and play connectors, It is not necessary to open the monitor, nor the CD unit. Just inserted behind CD's video plug and power plug, aftermarket navigation and camera picture can be displayed.

✓ Plug and play connectors are used, the installer does not need to cut any wires. OEM keys are used to switch the interface.

✓ Automatic dimmer with the car's light detection sensor, so the user will not feel too bright in evening-driving, or too dark in day driving.

✓ High definition internal navigation modules takes SD card for map, various kinds of navigation software are supported.

✓ Optional   DVD-free can be installed, so the passenger can watch DVD while driving.

✓ Automatical reverse camera display has these features:

● Reverse and guide line signals are generated by CAN bus, the installer does not need to cut any wires.

● Guideline width can be adjusted, so whatever camera the installers use, the guideline can always show the safety parking area.

● The DIP8 can be used to show OEM PDC picture or not.[PDC=radar picture of abstacles]

The EXIT or NAVI key or empty key below RADIO can be used to switch the interface.

1. DIP settings

DIP	Down side（=ON）	Up side（=OFF）
1	External RGB input enabled This box has intenal navi module with digital connection. Make DIP1=ON only one extra navi or possibly SmartPhone connection inserted.	RGB input disabled
2,3	AV1/2 input enabled	AV1/2 input disabled
4	RGB input= VGA resolution 800X480 This is the suggested resolution, no matter the panel resolution.	RGB input= NTSC resolution 400[or 480]X240。
5	AV4 video is selected when green wire goes to 12V.[this is for the case aftermarket camera is installed]	Car oem picture is selected when green wire = 12V.
6	Set to ON once for IR programming, and to ON 5 times for touch panel calibration.	Set to OFF for normal use. Note：this Calibration is for touch to control DVD/TV in AV1/2 mode, the navi mode is done by powring this unit up without SD card in slot.
DIP **7, 8**	The DIP7should ALWAYS Up. Dip8=Down: when go to reverse, the PDC will be mixed with inserted camera picture[like picture above]. Dip8=UP: when go to reverse, the inserted camera picture will be displayed full screen[No PDC].	

1 / 6

2. connection description：

DIP

Ext RGB

Panel connector pinout (top):
1. RGB En.
2. AV1 En.
3. AV2 En.
4. RGB=HD
5. CAM En
6. TXD2navi
7. Pnl Ctrl.
8. Res Ctrl.

Ext RGB connector:
1. Red
2. Green
3. Blue
4. CSync
5. GND
6. TXD2navi
7. IR Out
8. Vsync

Middle connector:
1. CVBS1
2. CVBS2
3. camera
4. GND
5. RXD.Term
6. IR.cvbs2

TXD2Navi ● ■ T-X+
TXD.Status ● ■ T-Y+
5V_Sw ● ■ T X
5V_AV1/2 ● ■ I-Y-

Power connector:
1. BATT.
2. ACC
3. Ctrl.Data
4. GND
5. Reverse
6. Sw.Data

Video Interface [ ] Navigation

Menu Up Down

SD Slot

USB

Touch

Audio Switch

LVDS OUTPUT

Spk IN / Spk Out / Navi Talkover

Red: reverse camera.
White: AV2 video
Yellow: AV1 video.
Gray: IR output for DVD/TV

Power

This LVDS Plug: should be inserted to CD's socket.

This LVDS socket: should be inserted with video cable's CD side. Not monitor side.

Note:
   The LVDS cable and power cable both should be inserted behind CD. Not behind monitor, otherwise black screen will be shown in interface mode, thought nothing damages.

This harness should be inserted behind the CD to give power and control signals to interface.

Connectors on the other side：

GPS antenna here. The mini-USB below is for Dongle with 3G/4G live traffic communication.

MIC input for optional Bluetooth module, when android navi module is used inside, this can also be used as voice control.

4-wire to touch panel with extension cable.

2 to 1 audio selection for AUX connector of car.

LVDS cable connector

Mini-speaker for navigation guidance.

USB MIC Touch Audio Switch LVDS OUTPUT Spk IN Spk Out Navi Talkover

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The 6PIN power connector signal definition of interface box：

[just for the installer's reference, he does not need to modify anything, these signals are genenrated by CAN box.]

YELLOW：power supply of 12V BATT。

RED：**generated ACC（=12V when key in ignition state）**：when=12V，the interface works. This signal is automatically generated by CAN box.

BLACK：Ground to Chassis。

GREEN：Can box generated reverse trigger signal [when =12V the reverse video is enabled].

WHITE：this wire is the switch signal, when the user presses the Call-off key, then the interface switches.

GRAY：CAN box's communication data with guideline angle.

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3. operations：

（1）Switch：

- the user may press the OEM keys to switch the interface[NAVI，or empty key below RADIO，or EXIT].

- The user can also use an extra keypad, to short-circuit the gray wire to ground of the power input port. [the gray wire is usually 5V, generated from inside interface]

（2）Reverse and guidelines： the user goes to reverse, a 12V will be generated by CAN box, and reverse video will be displayed. The use can also use DIP5 to select OEM video or inserted camera video.

The guideline can be enable/disabled by OSD menu.

（3）OEM keys to control DVD/TV：

1) the user press MEDIA,so audio is switched to AUX。

2) Then by press the switch key, the AV1/AV2 video input of interface is displayed.

3) By pressing the "Fast Farward","Fast backward" keys, the MMI will pop up and traversed, a short press on the switch key will generate the IR code on the gray wire, so DVD/TV is controlled without remote controller.

4. the 3 side key buttons

The input box has 3 side keys, the installer may use it to tune the picture display, and touch function for the connected DVD or other devices. The 3 keys are : menu, +, -. The first 5 options has separate state memory. The modification of one input is different not affecting others.

- The 3 side keys are : menu, +,- respectively. When menu is press, OSD strings will pop up on screen, and the installer may adjust the best video effect.　　The +/- will change the value.

- The brightness/contrast/saturation tunes the color of the current video input.

- The position H,position V set the image position on screen.

- The DVD/TUNER/NAVI is to set the IR code output to the installed device, so people use original knob or touch screen to control the installed device in AV1/2 mode. Left/right push will pop up the MMI icons, and push will execute the selected icon.

- When set to "none", the control icons will not pop out

- When set to "Prog", the installer can use DIP6=Down to program the IR code into the interface, so extra new devices can be controlled.
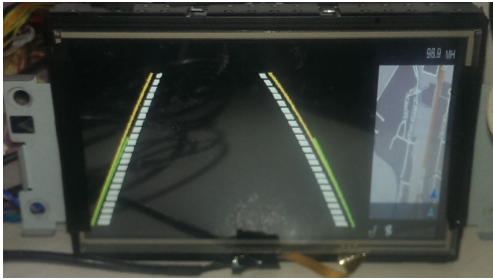
The "Guide CTRL......ON": the installer can set ON/OFF to enable the parking guide line, which shows the safe zone when parking.

The Guide-L,Guide-R parameter will adjust the horizontal offset of the left/right guide respectively.

The programming of IR code：

- There are >10 types of DVD, NAVI, and Tuners' IR code are stored inside the interface. The installer just adjusts the options to select to wanted one, then it works. If the wanted type is not there may set the option to be "Prog" in the menu.

- When programming, switch the input to AV1, and set DIP6 down once, then the control icons will be shown, and one of the them will be blinking, which means the suitable IR code is wanted. installer should now connect the hardware: connect the IR signal wire of the DVD to the gray-wire in the power cable of the interface[the IR input wire.], and press once the related IR key.

- Then the 2nd icon will be blinking, which means one IR code is read and another code is wanted, the installer just repeat the pressing till all code are read.

- When the last icons stops blinking. The installer should change the hardware: connect the IR output wire[RGB port's 7 pin wire] of interface to the DVD's IR signal wire. Then when the user rota the knob or use the touch foil to generate the IR code, DVD will be controlled.

- The programming of AV2 is the same as above.

5. Extra control port:
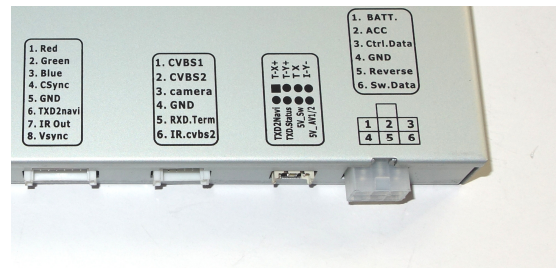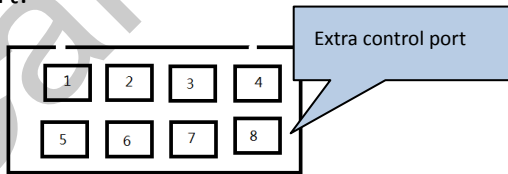
Extra control port

This interface has released a lot of hidden functions, so the 3rd party can use it for various usages.

The Extra control port close to the power connector：

（1）the 4-pin in the up row：touch screen 4Pin input, when in DVD or TV, the touch foil can be switched and connected to these 4Pin, so the controller inside can read the touch operation and location and generate the IR code for DVD etc.

（2）the 5th Pin(TXD2Navi)：the input pin to take external control data for internal navi, to replace the touch control。

（3）the 6th Pin (TXD.Status)：the interface tells the outside its internal status.

（4）the 7th Pin（5V_SW）: this pin can output 5V with 1A max, which is enough for a relay pull, when in inserted video this pin=5V, when in OEM video, this pin=0V.

（5）the 8th Pin（5V_AV1/2）: this pin can output 5V with 1A max, which is enough for a relay pull, when in AV1/2 video this pin=5V, otherwise this pin=0V. it can be used to switch the 4Pin touch so one touch foil is shared by navi, and DVD/TV.

The 5th pin in the Video input port（RXD.Term）：

This interface can work in terminal mode, a 3rd developer or installer can send commands into this pin. E.g. when he sends "switchInput 1\r",the interface will switch into RGB navi, "switchInput 2\r",the interface will switch into AV1, when he sends"Help\n"， the interface will tell a list of available commands. This Pin works in 11.5K baud rate and it losts all sent commands when drops power.

6. Parameters

| No.	name	parameter
1	RGB map resolution	800X480 HD suggested.
2	Av1, , cam video	0.7Vpp with 75 ohm impedance NTSC/PAL/SECAM automatic switch
3	GPS antenna	5V active antenna from the golden finger connector.
4	Reverse Control wire	>5V will force into camera mode. All these wires can tolerate 12V for <10 seconds.
5	Normal Power consumption	4.8W
6	Standby current	< 10uA
7	Reverse trigger threshold	>5V trigger
8	Work temperature	-40 ~ +85C
9	Size	15.2 * 9 * 2.1CM
11	USB	OTG function,1A output with surge of 3A.
12	Compatible with maps	Navione, navitel, Igo, Primo.sygic, etc.

7. simple manual about the navi module.

（1）How to update the module software：

Copy the files that   provides into a SD card.

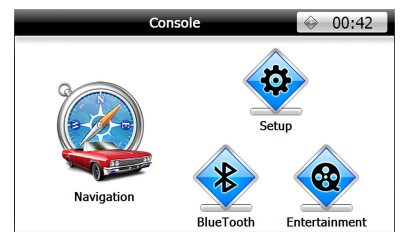When the units power on, the users may see this picture. He just wait the start

Up screen shown again.
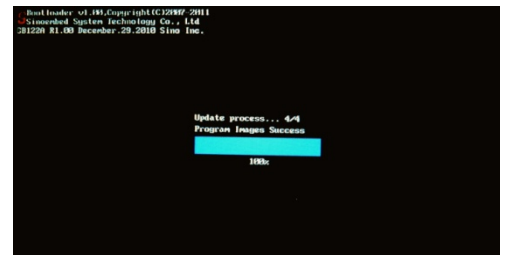
（2）How to make a start up Logo:

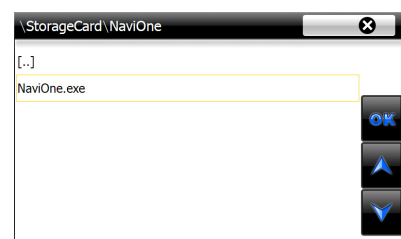Make a directory named YP_A5, and put all the file that   supplies for a boot.

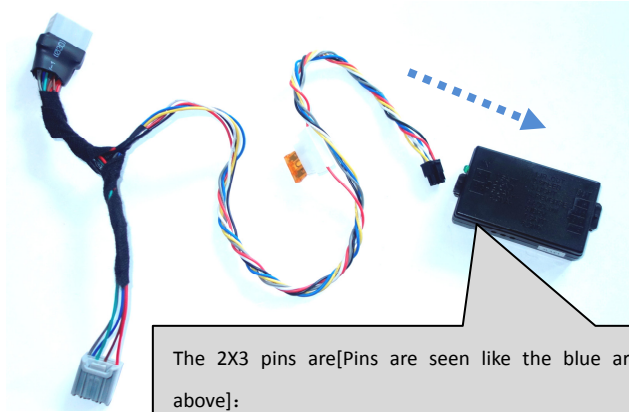Replace the logo.BMP which contains the logo. Please be sure it must be 800×480，BMP format, and 16 bit in color.

（3）The functions of the icons.

The left picture shows the start up picture, the user may go to each icon to get their respective function.

When the navigation map is inserted the first time, the user may click the navigation icon, and the right-side picture will show up, the user should select the *.exe file to run the map.   All the other functions are self-explained in the manu.

8. DVD-free module

This module enables the passenger to watch OEM DVD when the car is driving. Plug-n-play connector is used so the installer just plug it behind the monitor then it works.

The input side has 2X3 pins, their respective function is explained in the picture. The output 2X4 connector should be left free.

The 2 sets of CAN wires of the input side can shifted in connection.

The 2X3 pins are[Pins are seen like the blue arrow above]:

1.   The left 2，Up=Power+，Down=Ground

2.   Center 2：Up=CAN+ input，Down=CAN-input

3.   Right 2：Up=CAN+ output，Down= CAN-Output.

The CAN input/output are connected to monitor/Cd respectively. They can be switched in position.

The user may long press the OK key to activate/disable the DVD-free function. It is ON when installed the first time.

Attentions：

● For Volvo before 2014 [Feature: there is an optical connector behind monitor]，this module should be just inserted on the power plug.

● For Volvo after 2014 [Feature: there is NO optical connector behind monitor]，this module should be inserted on the power plug of CD [the CAN wires are shown here.]

   ➢ The input/output of the CAN box can be switched.

   ➢ While the CAN+/- should NOT be switched inside the input or the output.

CAN+
CAN-