

**Instruction manual**  
**for UNIT ASSY DA**  
**AH1801**

**Ver.1.2    31th May '2016**

Panasonic Corporation  
Automotive & Industrial  
Systems Company

## Descriptions and Precautions on the use of the device

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

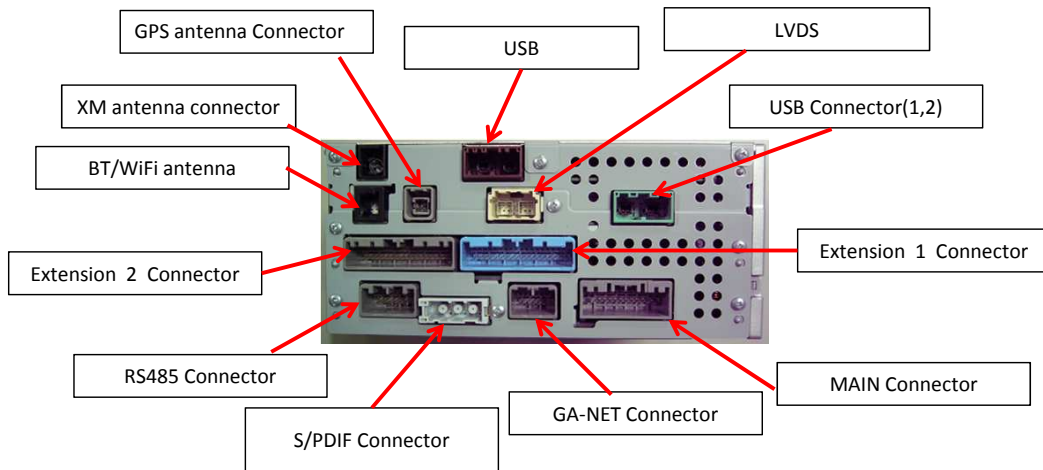
Caution: The user is cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body. End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

# [1.The name of the connectors and the operating devices]

## UNIT ASSY DA (AH1801)

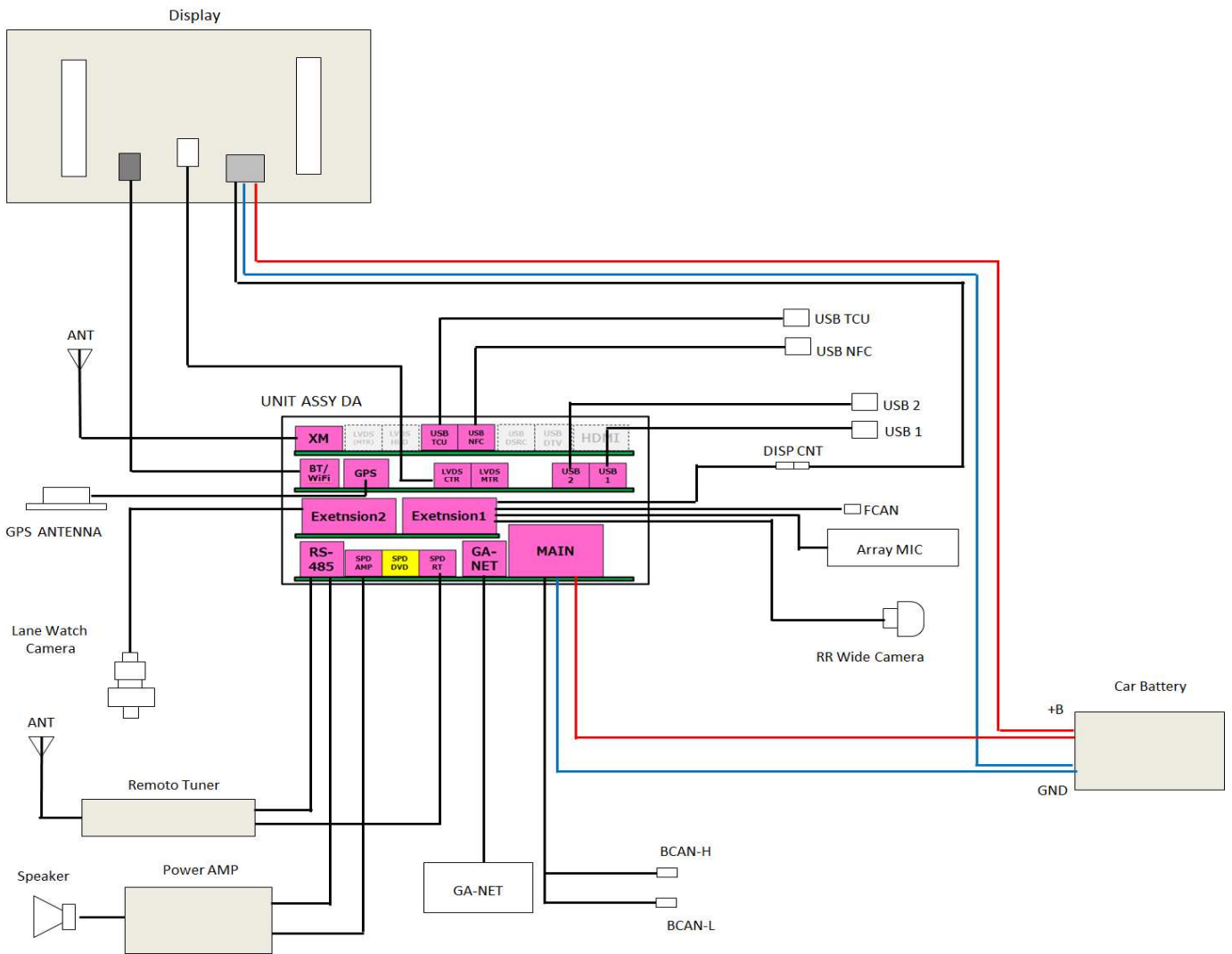


## DISPLAY (39710-TVAF-A21)



Note. Display is not included in the configuration of the AH1801

## [2.Connection between the units]



### [3.Audio functuons]

Type of face palel button



No.	Type of operation/v	1 [AUDIO]		2 [SOURCE]		3 [PWR]button		4 [I<<]		5 [>>]		6 [SELECT]			
		short push	long push	short push	long push	rotation	short push	long push	short push	long push	short push	long push	rotation	short push	long push
Audio surce	Audio OFF	trance to Audio Top screen	Invalid	Pop-up of Audio surce screen	Invalid	Invalid	Audio Power ON	Invalid	Invalid	Invalid	Invalid	Invalid	<Audio application on foreground> Audio Top screen : Invalid Audio list screen : Invalid <Audio application on background> Naitive list screen : LIST UP/DOWN of Naitive LIST Screen without Naitive LIST : Invalid	<Audio application on foreground> Screen of Non-LIST : Invalid Audio list screen : Invalid <Audio application on background> Naitive list screen : Naitive list serect Screen without Naitive LIST : Invalid	Invalid
	On HFTinterrupting	trance to Audio Top screen	Invalid	Invalid	Invalid	VOLUME UP/DOWN	Invalid	Invalid	Invalid	Invalid	Invalid	Invalid	<Audio application on foreground> Audio Top screen : Invalid Audio list screen : Invalid <Audio application on background> Naitive list screen : LIST UP/DOWN of Naitive LIST Screen without Naitive LIST : Invalid	<Audio application on foreground> Screen of Non-LIST : Invalid Audio list screen : Invalid <Audio application on background> Naitive list screen : Naitive list serect Screen without Naitive LIST : Invalid	Invalid
	FM	trance to Audio Top screen	Invalid	Pop-up of Audio surce screen	Invalid	VOLUME UP/DOWN	Audio OFF	Invalid	SEEK DOWN	Continuously SEEK DOWN	SEEK UP	Continuously SEEK UP	<Audio application on foreground> Audio Top screen : TUNE UP/DOWN Audio list screen : IST UP/DOWN of Audio LIST <Audio application on background> Naitive list screen : LIST UP/DOWN of Naitive LIST Screen without Naitive LIST : TUNE UP/DOWN	<Audio application on foreground> Screen of Non-LIST : Invalid Audio list screen : list seect <Audio application on background> Naitive list screen : Naitive list serect Screen without Naitive LIST : Invalid	Invalid
	LW	trance to Audio Top screen	Invalid	Pop-up of Audio surce screen	Invalid	VOLUME UP/DOWN	Audio OFF	Invalid	SEEK DOWN	Continuously SEEK DOWN	SEEK UP	Continuously SEEK UP	<Audio application on foreground> Audio Top screen : TUNE UP/DOWN Audio list screen : LIST UP/DOWN of Audio LIST <Audio application on background> Naitive list screen : LIST UP/DOWN of Naitive LIST Screen without Naitive LIST : TUNE UP/DOWN	<Audio application on foreground> Screen of Non-LIST : Invalid Audio list screen : list seect <Audio application on background> Naitive list screen : Naitive list serect Screen without Naitive LIST : Invalid	Invalid










	No. Type of operation	1 [AUDIO]		2 [SOURCE]		3 [PWR]button		4 [I<<]		5 [>>]		6 [SELECT]			
		short push	long push	short push	long push	rotation	short push	long push	short push	long push	short push	long push	rotation	short push	long push
AM		trance to Audio Top screen	Invalid	Pop-up of Audio surce screen	Invalid	VOLUME UP/DOWN	Audio OFF	Invalid	SEEK DOWN	Continuously SEEK DOWN	SEEK UP	Continuously SEEK UP	<Audio application on foreground> Audio Top screen : TUNE UP/DOWN Audio list screen : LIST UP/DOWN of Audio LIST <Audio application on background> Naitive list screen : LIST UP/DOWN of Naitive LIST Screen without Naitive LIST : TUNE UP/DOWN	<Audio application on foreground> Screen of Non-LIST : Invalid Audio list screen : list secect <Audio application on background> Naitive list screen : Naitive list serec Screen without Naitive LIST : Invalid	Invalid
SXM		trance to Audio Top screen	Invalid	Pop-up of Audio surce screen	Invalid	VOLUME UP/DOWN	Audio OFF	Invalid	SKIP DOWN	Invalid	SKIP UP	Invalid	<Audio application on foreground> Audio Top screen : CHANNEL UP/DOWN Audio list screen : LIST UP/DOWN of Audio LIST <Audio application on background> Naitive list screen : LIST UP/DOWN of Naitive LIST Screen without Naitive LIST : CHANNEL UP/DOWN	<Audio application on foreground> Screen of Non-LIST : Invalid Audio list screen : list secect <Audio application on background> Naitive list screen : Naitive list serec Screen without Naitive LIST : Invalid	Invalid
USB	USB-Music	trance to Audio Top screen	Invalid	Pop-up of Audio surce screen	Invalid	VOLUME UP/DOWN	Audio OFF	Invalid	FILE DOWN	REW	FILE UP	FF	<Audio application on foreground> Audio Top screen : FILE UP/DOWN Audio list screen : LIST UP/DOWN of Audio LIST <Audio application on background> Naitive list screen : LIST UP/DOWN of Naitive LIST Screen without Naitive LIST : FILE UP/DOWN	<Audio application on foreground> Screen of Non-LIST : Invalid Audio list screen : list secect <Audio application on background> Naitive list screen : Naitive list serec Screen without Naitive LIST : Invalid	Invalid
	USB-Video	trance to Audio Top screen	Invalid	Pop-up of Audio surce screen	Invalid	VOLUME UP/DOWN	Audio OFF	Invalid	FILE DOWN	REW	FILE UP	FF	<Audio application on foreground> Audio Top screen : FILE UP/DOWN Audio list screen : LIST UP/DOWN of Audio LIST <Audio application on background> Naitive list screen : LIST UP/DOWN of Naitive LIST Screen without Naitive LIST : FILE UP/DOWN	<Audio application on foreground> Screen of Non-LIST : Invalid Audio list screen : list secect <Audio application on background> Naitive list screen : Naitive list serec Screen without Naitive LIST : Invalid	Invalid
	iPod	trance to Audio Top screen	Invalid	Pop-up of Audio surce screen	Invalid	VOLUME UP/DOWN	Audio OFF	Invalid	TRACK DOWN	REW	TRACK UP	FF	<Audio application on foreground> Audio Top screen : TRACK UP/DOWN Audio list screen : LIST UP/DOWN of Audio LIST <Audio application on background> Naitive list screen : LIST UP/DOWN of Naitive LIST Screen without Naitive LIST : TRACK UP/DOWN	<Audio application on foreground> Screen of Non-LIST : Invalid Audio list screen : list secect <Audio application on background> Naitive list screen : Naitive list serec Screen without Naitive LIST : Invalid	Invalid

	No.	1		2		3		4		5		6			
		Type of operation/	[AUDIO]	[SOURCE]	VOLUME	[PWR]button	[[<<]	[>>]	TUNE/SCROOL	[SELECT]					
		short push	long push	short push	long push	rotation	short push	long push	short push	long push	short push	long push	rotation	short push	long push
Bluetooth Audio	AVRCP Ver.1.0	trance to Audio Top screen	Invalid	Pop-up of Audio surce screen	Invalid	VOLUME UP/DOWN	Audio OFF	Invalid	TRACK DOWN	REW	TRACK UP	FF	<Audio application on foreground> Audio Top screen : TRACK UP/DOWN Audio list screen : LIST UP/DOWN of Audio LIST <Audio application on background> Naitive list screen : LIST UP/DOWN of Naitive LIST Screen without Naitive LIST :	<Audio application on foreground> Screen of Non-LIST : Invalid Audio list screen : list seect <Audio application on background> Naitive list screen : Naitive list serect Screen without Naitive LIST : Invalid	Invalid
	AVRCP Ver.1.3	trance to Audio Top screen	Invalid	Pop-up of Audio surce screen	Invalid	VOLUME UP/DOWN	Audio OFF	Invalid	TRACK DOWN	REW	TRACK UP	FF	<Audio application on foreground> Audio Top screen : TRACK UP/DOWN Audio list screen : LIST UP/DOWN of Audio LIST <Audio application on background> Naitive list screen : LIST UP/DOWN of Naitive LIST Screen without Naitive LIST : TRACK UP/DOWN	<Audio application on foreground> Screen of Non-LIST : Invalid Audio list screen : list seect <Audio application on background> Naitive list screen : Naitive list serect Screen without Naitive LIST : Invalid	Invalid
	AVRCP Ver.1.4/1.5	trance to Audio Top screen	Invalid	Pop-up of Audio surce screen	Invalid	VOLUME UP/DOWN	Audio OFF	Invalid	TRACK DOWN	REW	TRACK UP	FF	<Audio application on foreground> Audio Top screen : TRACK UP/DOWN Audio list screen : LIST UP/DOWN of Audio LIST <Audio application on background> Naitive list screen : LIST UP/DOWN of Naitive LIST Screen without Naitive LIST :	<Audio application on foreground> Screen of Non-LIST : Invalid Audio list screen : list seect <Audio application on background> Naitive list screen : Naitive list serect Screen without Naitive LIST : Invalid	Invalid
Smartphone Connection	MirrorLink	trance to Audio Top screen	Invalid	Pop-up of Audio surce screen	Invalid	VOLUME UP/DOWN	Audio OFF	Invalid	TRACK DOWN	Invalid	TRACK UP	Invalid	<Audio application on foreground> Audio Top screen : TRACK UP/DOWN Audio list screen : Invalid <Audio application on background> Naitive list screen : LIST UP/DOWN of Naitive LIST Screen without Naitive LIST : TRACK UP/DOWN	<Audio application on foreground> Screen of Non-LIST : Invalid Audio list screen : Invalid <Audio application on background> Naitive list screen : Naitive list serect Screen without Naitive LIST : Invalid	Invalid
	AndroidAuto	trance to Audio Top screen	Invalid	Pop-up of Audio surce screen	Invalid	VOLUME UP/DOWN	Audio OFF	Invalid	TRACK DOWN	Invalid	TRACK UP	Invalid	<Audio application on foreground> Audio Top screen : TRACK UP/DOWN Audio list screen : Invalid <Audio application on background> Naitive list screen : LIST UP/DOWN of Naitive LIST Screen without Naitive LIST : TRACK UP/DOWN	<Audio application on foreground> Screen of Non-LIST : Invalid Audio list screen : Invalid <Audio application on background> Naitive list screen : Naitive list serect Screen without Naitive LIST : Invalid	Invalid
	CarPlay	trance to Audio Top screen	Invalid	Pop-up of Audio surce screen	Invalid	VOLUME UP/DOWN	Audio OFF	Invalid	TRACK DOWN	Invalid	TRACK UP	Invalid	<Audio application on foreground> Audio Top screen : TRACK UP/DOWN Audio list screen : Invalid <Audio application on background> Naitive list screen : LIST UP/DOWN of Naitive LIST Screen without Naitive LIST : TRACK UP/DOWN	<Audio application on foreground> Screen of Non-LIST : Invalid Audio list screen : Invalid <Audio application on background> Naitive list screen : Naitive list serect Screen without Naitive LIST : Invalid	Invalid

No.	Type of operation/	1 [AUDIO]		2 [SOURCE]		3 [VOLUME]			4 [PWR]button		5 [I<<] [I>>]		6 [TUNE/SCROOL] [SELECT]		
		short push	long push	short push	long push	rotation	short push	long push	short push	long push	short push	long push	rotation	short push	long push
	Audio Apps	trance to Audio Top screen	Invalid	Pop-up of Audio surce screen	Invalid	VOLUME UP/DOWN	Audio OFF	Invalid	Depend on Audio Apps	Depend on Audio Apps	Depend on Audio Apps	Depend on Audio Apps	<Audio application on foreground> Audio Top screen : Depend on Audio Apps Audio list screen : Depend on Audio Apps <Audio application on background> Naitive list screen : LIST UP/DOWN of Naitive LIST Screen without Naitive LIST : Depend on Audio Apps	<Audio application on foreground> Screen of Non-LIST : Depend on Audio Apps Audio list screen : Depend on Audio Apps <Audio application on background> Naitive list screen : Naitive list serect Screen without Naitive LIST : Depend on Audio Apps	Invalid
	AUX-HDMI														
	AUX-Audio														



### [4.Audio operations]

Audio source		controll button		Audio function	Image of screen
FM	HD-Radio	Station List	-	Indication of StationList screen	
		SCAN	-	SCAN	
		>>	short push	SEEK UP	
			long push	Continuously SEEK UP	
		<<	short push	SEEK DOWN	
			long push	Continuously SEEK DOWN	
		Tune	-	Indication of DirectTune screen	
		HD Radio	-	Indication of sub-channel list screen	
		Sound	-	Indication of Sound adjustment screen	
		HD Settings	-	Indication of HD Settings screen	
		PRESET1~12	short push	PRESET CALL	
			long push	entry PRESET	
	PRESET9~12	-	Indication of PRESET9~12		
	PRESET5~8	-	Indication of PRESET5~8		
	PRESET1~4	-	Indication of PRESET1~4		
	Station List	-	Indication of StationList screen		
	RBDS	SCAN	-	SCAN	
		>>	short push	SEEK UP	
			long push	Continuously SEEK UP	
		<<	short push	SEEK DOWN	
			long push	Continuously SEEK DOWN	
		Tune	-	Indication of DirectTune screen	
		Sound	-	Indication of Sound adjustment screen	
		PRESET1~12	short push	PRESET CALL	
			long push	entry PRESET	
		PRESET9~12	-	Indication of PRESET9~12	
		PRESET5~8	-	Indication of PRESET5~8	
		PRESET1~4	-	Indication of PRESET1~4	
	Station List	-	Indication of StationList screen		
	RDS	SCAN	-	SCAN	
		>>	short push	SEEK UP	
		<<	short push	SEEK DOWN	
		Tune	-	Indication of DirectTune screen	
		Sound	-	Indication of Sound adjustment screen	
		Settings	-	Indication of Settings screen	
		PRESET1~12	short push	PRESET CALL	
		long push	entry PRESET		
PRESET9~12		-	Indication of PRESET9~12		
PRESET5~8		-	Indication of PRESET5~8		
PRESET1~4		-	Indication of PRESET1~4		
Station List		-	Indication of StationList screen		
without	SCAN	-	SCAN		
	>>	short push	SEEK UP		
		long push	Continuously SEEK UP		
	<<	short push	SEEK DOWN		
		long push	Continuously SEEK DOWN		
	Tune	-	Indication of DirectTune screen		
	Sound	-	Indication of Sound adjustment screen		
	PRESET1~12	short push	PRESET CALL		
		long push	entry PRESET		
	PRESET9~12	-	Indication of PRESET9~12		
	PRESET5~8	-	Indication of PRESET5~8		
	PRESET1~4	-	Indication of PRESET1~4		
Station List	-	Indication of StationList screen			
AM/MW/LW	HD-Radio	SCAN	-	SCAN	
		>>	short push	SEEK UP	
			long push	Continuously SEEK UP	
		<<	short push	SEEK DOWN	
			long push	Continuously SEEK DOWN	
		Tune	-	Indication of DirectTune screen	
		Sound	-	Indication of Sound adjustment screen	
		HD Settings	-	Indication of HD Settings screen	
		PRESET1~12	short push	PRESET CALL	
			long push	entry PRESET	
		PRESET9~12	-	Indication of PRESET9~12	
		PRESET5~8	-	Indication of PRESET5~8	
PRESET1~4	-	Indication of PRESET1~4			
Station List	-	Indication of StationList screen			
without	SCAN	-	SCAN		
	>>	short push	SEEK UP		
		long push	Continuously SEEK UP		
	<<	short push	SEEK DOWN		
		long push	Continuously SEEK DOWN		
	Tune	-	Indication of DirectTune screen		
	Sound	-	Indication of Sound adjustment screen		
	PRESET1~12	short push	PRESET CALL		
		long push	entry PRESET		
	PRESET9~12	-	Indication of PRESET9~12		
	PRESET5~8	-	Indication of PRESET5~8		
	PRESET1~4	-	Indication of PRESET1~4		
Station List	-	Indication of StationList screen			
SXM	Receiving	SCAN	-	CHANNEL MODE SCAN CATEGORY MODE SCAN TUNE SCAN	
		CHANNEL UP	short push	CHANNEL UP	
			long push	ROUGH CHANNEL UP	
		CHANNEL DOWN	short push	CHANNEL DOWN	
			long push	ROUGH CHANNEL DOWN	
		Category UP	-	CATEGORY UP	
		Category DOWN	-	CATEGORY DOWN	
		Sound	-	Indication of Sound adjustment screen	
		Settings	-	Indication of Settings screen	
		More	-	Indication of More screen	
		View Channel Schedule	-	Indication of View Channel Schedule screen	
		Category List	-	Indication of Category List screen	
	SKIP DOWN( <<)	short push	SKIP DOWN		
		long push	REW		
	PLAY/PAUSE	-	PLAY/PAUSE		
	SKIP UP(>> )	short push	SKIP UP		
		long push	FF		
	Live	-	Live		
	Time Bar	-	PlaybackJump		
	PRESET1~12	short push	PRESET CALL		
		long push	entry PRESET		
	PRESET9~12	-	Indication of PRESET9~12		
	PRESET5~8	-	Indication of PRESET5~8		
	PRESET1~4	-	Indication of PRESET1~4		
	Browse	-	Indication of MusicSearch screen		
	SCAN	-	ScanTrack ScanFolder		
	TRACK Down	short push	FILE DOWN		
		long push	REW		
	PLAY/PAUSE	-	PLAY/PAUSE		
	TRACK Up	short push	FILE UP		
		long push	FF		
	Repeat	-	FileRepeat~FolderRepeat~RepeatOff toggle switching		
	Random	-	FolderRandom~RandomAll~RepeatOff toggle switching		
	Time Bar	-	PlaybackJump		
	Sound	-	Indication of Sound adjustment screen		
	Browse	-	Indication of MusicSearch screen		
USB-Music	mini-player indication	>>	short push	FILE UP	
			long push	FF	
		<<	short push	FILE DOWN	
			long push	REW	
		STOP	-	STOP	
		PLAY/PAUSE	-	PLAY/PAUSE	
		Repeat	-	FileRepeat~FolderRepeat~RepeatOff toggle switching	
		Random	-	FolderRandom~RandomAll~RepeatOff toggle switching	
		Time Bar	-	PlaybackJump	
		Sound	-	Indication of Sound adjustment screen	
		Settings	-	Indication of Settings screen	
		USB-Video	full screen indication (with control button)	Video area for mini-play	
Browse	-			Indication of MusicSearch screen	
>>	short push			FILE UP	
	long push			FF	
<<	short push			FILE DOWN	
	long push			REW	
STOP	-			STOP	
PLAY/PAUSE	-			PLAY/PAUSE	
Repeat	-			FileRepeat~FolderRepeat~RepeatOff toggle switching	
Random	-			FolderRandom~RandomAll~RepeatOff toggle switching	
Time Bar	-			PlaybackJump	
Sound	-			Indication of Sound adjustment screen	
Settings	-	Indication of Settings screen			
iPod	full screen indication (with control button)	Track Down	short push	TRACK DOWN	
			long push	REW	
		PLAY/PAUSE	-	PLAY/PAUSE	
		TRACK Up	short push	TRACK UP	
			long push	FF	
		Repeat	-	FileRepeat~FolderRepeat~RepeatOff toggle switching	
		Random	-	FolderRandom~RandomAll~RepeatOff toggle switching	
		Time Bar	-	PlaybackJump	
		Sound	-	Indication of Sound adjustment screen	

Audio source		control button		Audio function	Image of screen
		button name	judge		
Bluetooth Audio		Browse	-	indication of MusicSearch screen	
		Track Down	short push long push	TRACK UP FF	
		PLAY/PAUSE	-	PLAY/PAUSE	
		Track Up	short push long push	TRACK DOWN REW	
		Repeat	-	Repeat→RepeatOff toggle switching	
		Random	-	Random→RepeatOff toggle switching	
		Time Bar	-	indication of remaining time/elapsed time	
		Sound	-	indication of Sound adjustment screen	
		Change Device	-	indication of Bluetooth setting screen	
		Smartphone Connection		MirrorLink	
Android Auto	-			N/A	-
CarPlay	-			N/A	-
Audio Apps		-	-	N/A	-
AUX-HDMI					
AUX-Audio					

# 【5.Equipment Specifications】

## Common Specifications

Item	Description
Rated Input Voltage	DC13.2V (Voltage range10.8V~16V)
Rated Input Current	5A
Audio Input	S/PDIF(TUNER), USB, Wi-Fi/BT
Audio Output	S/PDIF
Operating temperature range	-30~70°C
Place of use	Vehicle
External dimensions	W180xD129xH80(mm)
Mass	1.6kg

## Audio/Telephone functions

Item	Description
RADIO TUNER Interface	Radio operation and equalizing interface
USB AUDIO Interface	USB, i-POD operation and equalizing interface
Wi-Fi/BT Connection	Music,Hands Free Telephone etc.
MIC Interface	

## Human Machine Interface functions

Item	Description
GPS receiver	
USB TCU Interface	*Telematic Control Unit
RR Wide Camera Interface	
Lain Watch Camera Interface	

## Bluetooth

Item	Description
Corresponding specification	EDR-2Mbps, EDR-3Mbps 1.X, 2.X +EDR AFH
Output level	3dBm(2±1)
Frequency of operation	2402-2480MHz
Type of modulation	FHSS GFSK,π/4 DQPSK, 8DPSK
Emission Designation(ITU Code)	F1D, G1D
Bandwidth	Hopping off 1MHz Hopping on 79MHz
Channel Spacing	1MHz

## Wi-Fi

Item	Description
Corresponding specification	2.4GHz: b, g, n.(20/40MHz) not supporting MIMO 5GHz: a, n, ac(20/40/80MHz) not supporting MIMO
Output level	2.4GHz: 20dBm(19±1) 5GHz: 9dBm(8±1)
Mode	AP, STA
DFS function	AP: Support STA: Not support

## Wi-Fi support frequency band and channels

Frequency Band	Channels
2.4GHz	1/2/3/4/5/6/7/8/9/10/11/12/13ch
5GHz	W52(36/40/44/48ch)
	W53(52/56/60/64ch)
	W56(100/104/108/112/116/120/124/128/132/136/140/144ch)
	W58(149/153/157/161/165ch)