

IVI ECU HEAD Unit Product Specifications and User Manual V0.1
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Product	Model
IVI_ECU_US	T99H553.30

Customer Approval: _____

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Version number	Revision date	Revision	Review	Modify records
V0.1	2025/06/10	Kenny 、Rory		Initial Release
V0.2	2025/10/2	Kenny		Add AM Function Delete Block Diagram Add FCC Cautions statement

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0 Cautions and Regulatory Compliance Statements

- 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.
- Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment.
- This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.
- End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.
- For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible

15.105

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 or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Radiation Exposure Statement:

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.

1 Product introduction

The IVI ECU HEAD Unit is a cockpit network control system developed by FII for the electrification, intelligence and networking of commercial vehicles. It uses the MTK MT2715 smart cockpit automotive-grade chip, supports one-chip multi-screen applications, drives the Central Control Display, Meter display and supports AVM surround display, and meets the customization needs for different models. The dynamic HMI interaction highlights the all-round human-computer interaction of the new generation of smart cockpits, the warm cockpit space, and the modern sense of technology.

2 Hardware specifications

2.1 IVI ECU Head unit

Parameter configuration table

Key Technical Data	
Processor	MT2715@4 x ARM Cortex-A78 cores @ 1.6 GHz ; 4 x ARM Cortex-A55 cores @ 1.4 GHz
RAM/ROM	RAM: 16GB LPDDR4 ROM: 128GB emmc5.1
MCU	NXP S32K314NHT1VPBST
Wireless	
WIFI	WLAN 802.11a/b/g/n/ac
Bluetooth	BT 5.0
GNSS	Multi-GNSS engine for GPS, GLONASS, BeiDou, Galileo and QZSS Embedded 6-axis IMU (3-axis accelerometer + 3-axis gyroscope)
Tuner	
AM/FM	The Frequency Range and adjustment Step of AM/FM can be set and changed according to the needs of the place Support weak signal processing (such as Soft Mute / HCC / SNC). Support HD Radio (North America)
Video Interface	
Camera	4-channel HD-TVI input, support surround image AVM, transparent chassis, dynamic vehicle width line
Video out	The Meter panel and Central control are connected in a daisy chain using FPD-link IV generation Serializer and Deserializer Central control screen (resolution 1920*1080), Meter screen (resolution 1920*720)
Audio Interface	

A2B	1-channel A2B Master, master control is AD2435
Communication interface	
USB	1 * USB2.0 typeC(White), 5Vdc , 3A 1* USB3.0 type C(Blue), supports 20W PD fast charging, supports wired Carplay, Andriod Auto, 20Vdc, 1A
Ethernet	1* 100base-T1
CAN	2* CAN-FD , One of them is reserved
Antenna Interface	
Wifi/BT antenna	2*WiFi antennas , Fakra connector Support power-on self-test
GPS antenna	1*GNSS antenna , Fakra connector Support power-on self-test
AM/FM antenna	1*AM/FM antenna , Fakra connector
ENVIRONMENTAL	
Operational Temp.	-30℃ ~ +75℃
Storage Temp.	-40℃ ~ +85℃
Product input specifications	12 VDC, 9A max.
Operation humidity	10% ~ 95%
Storage humidity	Max 95%
IVI ECU power consumption	
Normal working mode	2.5A @12V
Sleep mode	Standby current <20mA
Certification specifications	
Certification	FCC
Size and Weight	
Size	IVI ECU Head unit 222.15×180.15×48MM Size with bracket 263×208×74MM
Weight	1.52kg

3 Software Specifications

3.1 IVI Operating System

3.1.1 Operating System

OS	Android Automotive13.0
Linux Kernel	Kernel 5.15

3.1.2 Software Parameters

Function Module	Specification
IVI Operating System	When used solely as an IVI head unit, only Android Automotive 13-related BSP versions are supported if the Android system is adopted.
	In the event of a system crash, the system shall automatically recover and restore the screen display within 3 ~ 10 seconds, without affecting other services or background applications.
	Cold boot shall be completed within approximately 60 to 70 seconds. Boot-up may be initiated in advance using other CAN signals, such as door open signals.
	The display language shall be English by default, with support reserved for future expansion to different regional languages.
	English input method shall be supported. Specific input methods can be enabled or disabled based on regional requirements or user preferences. Support for future expansion of input methods for different regions shall be reserved.
	The system shall include and support the standard Android APP and Widget architecture, and support multitasking window features, including adjustable split-screen functionality.
	The system shall be capable of integrating with all peripheral devices associated with the IVI system.
	Applications compliant with Android specifications shall be installable on the system.
	User settings and personalized configurations (e.g., vehicle model detection settings, operation option toggles, radio presets, BT/Wi-Fi pairing information, etc.) shall be restored after system updates are completed.
	A string table format shall be provided for customer maintenance. Updated string content shall be incorporated into the IVI software during each software version update, and such string modifications shall not be classified as engineering change items.

	Built-in voice recognition and voice control functions (with TTS support) shall be provided to support integration with English (North America) voice recognition/voice control engine providers, including natural language understanding and voice wake-up capabilities.
VR	The voice recognition engine shall be capable of integrating with functions such as navigation, USB playback, Bluetooth calling, Bluetooth music, and vehicle body signals to enable voice-activated control and execution of related features.
	Audio Reception (must remain actively listening in the background at all times): 1. Support wake words to promptly activate voice recognition. The wake word mechanism shall support one-shot interaction mode. 2. Support input detection mechanisms to handle cases of silence or unrecognized input by reinitiating voice recognition attempts.
	The voice recognition engine shall be integrated with IVI functions to enable both in-vehicle and external control operations. 1. Support simultaneous recognition of multiple domain contexts. 2. Adopt an NLU (Natural Language Understanding) grammar framework without requiring exact pattern matching. 3. Support SLM (Statistical Language Model) for training based on statistical data.
	Search and Execution: 1. Support ignoring specific suffixes, e.g., “XX channel.” 2. Allow omission of filler or skipped words. 3. Support flexible word order (reordering of terms).
	The voice recognition framework shall support online, offline, and hybrid modes.
	Voice recognition response time shall be less than 10 seconds.
	The system shall be expandable to support different regional voice recognition engines if future requirements arise.
	The online voice recognition service shall support voice streaming uploads for recognition. Upon completion, the recognized information shall be able to interface with local services (e.g., local POI search, in-vehicle air conditioning control, local music playback) or online services (e.g., music streaming, online POI handoff).
	The TTS (Text-to-Speech) functionality shall support various in-vehicle IVI application requirements, such as built-in navigation.
	The IVI system shall be capable of external internet connectivity via the T-BOX.
	The system shall support an encrypted FOTA (Firmware Over-The-Air) service architecture or be capable of self-verifying the correctness and integrity of update packages.

Telematics Applications	IVI software shall be updatable via USB interface and OTA, utilizing a differential update mechanism with full update completion within 40 minutes. Peripheral devices shall also be updatable, with upgrade/update software provided by their respective vendors.
	A software tool and specification file shall be provided to detect peripherals and configure settings based on different vehicle models. These shall be placed on a USB drive to trigger the operation.
Engineering Mode	Updating the IVI software shall not affect user settings, user data, or vehicle model detection configurations.
	The system records user operation trace data with local retrieval and cloud upload capabilities.
	The system logs (including CAN data) shall maintain continuous recording for at least 120 hours of active operation (non-idle state, with overwrite capability). Foxtron must jointly define the log content specifications with the vendor, and the logs shall be retrievable/uploadable to cloud platforms.
	Debug software (with GUI) is provided to test, verify, and monitor the operational status of all peripherals in real-time.
	Advanced Graphics Support • Cinema-grade 3D effects (OpenGL) • Ultra-smooth 2D graphics (OpenVG)
	Planned Support for HD Radio (AM/FM) and Digital Broadcasting Features (For North American Customers)
2D / 3D Graphics Rendering Capabilities	The system shall support GNSS positioning (GPS / BeiDou / GALILEO / GLONASS), with primary focus on GPS and BeiDou systems.
	Navigation software and electronic maps (including high-precision map data applications) shall be built-in.
BT/WiFi	Support Bluetooth automatic connection mechanism. Integrated WiFi Hotspot Mode (5.0GHz, 802.11ac, 20/40/80MHz)
Tuner	Built-in 10-band EQ presets: Default (Flat), Pop, Rock, Rap, Metal, Dance, Electronic, Country, Jazz, Folk, Classical, Blues, Nostalgic Oldies, Reggae, and Opera.
Network Capabilities	1. Equipped with vehicle speed-linked intelligent volume control; volume will automatically decrease when in reverse gear (R) or other alert/reminder scenarios. 2. Reduce front speaker volume during voice output. 3. Automatically adjust soundstage position based on seat sensor location. 4. Individual channel volumes shall be adjustable.
Audio Processing	The system shall automatically switch audio processing functions based on different needs (e.g., calls, voice recognition), such as disabling ECNR processing during voice recognition (VR).

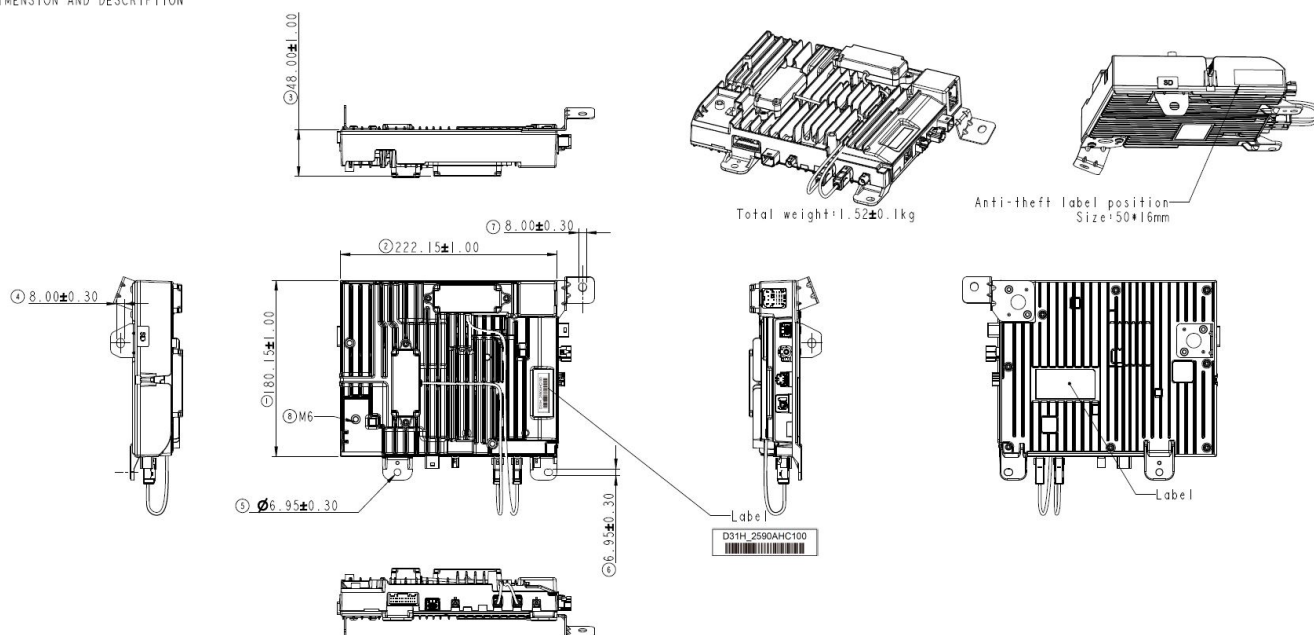
	Relevant warning, alert, and hands-free call audio shall be mixed and output to the front left and right door speakers or the center speaker according to regional requirements.
MIC	Relevant warning, alert, and hands-free call audio shall have independently adjustable volume levels.
Audio Capabilities	1. Equipped with TTS (Text-to-Speech) and STT (Speech-to-Text) functions. The vendor shall propose voice tone settings for confirmation by Foxtron, and the quotation must include the licensing fees. 2. TTS shall use natural speech synthesis to avoid robotic or mechanical-sounding pronunciation.
	The built-in DSP processing shall be capable of independently outputting audio channels for warnings, alerts, and hands-free calls, or mixing them into designated audio channels.
	Warning sound playback: Warning lights and their corresponding warning sounds shall be played synchronously, with the maximum time difference between the warning light display and sound playback not exceeding 50 ms.
	Fonts shall be designed with anti-aliasing, support display of standard English characters (ISO8859-1), and be extendable to support different regional languages (with UTF-8).
	Integrate Automotive Grade 720P/1080P Image Signal Processor with HD-TVI (High Definition Transport Video Interface).
	Support: 1. Around View Monitor (AVM) 2. Transparent chassis view 3. Dynamic vehicle lane lines
External audio/video	Video resolution shall support 720p and above.
EVS Kit	Able to switch between different video modes based on the input signal.
	USB data shall support FAT32 and ExFAT file system formats (NTFS is not supported).
	1. Support audio formats: • AAC [HE-AACv1, AACv1 (AAC+, HE-AACv2, AACv2 (enhanced AAC+))] • 3GP (AMR-NB, AMR-WB) • MP3, M4A • MID (MIDI) • WAV, WMA, MKV, APE, FLAC 2. Comply with all constant bit rate (CBR) and variable bit rate (VBR) formats, and support reading folder structures up to eight levels deep.
USB	Supports image formats: PNG, JPG, GIF, BMP

	Supported video formats: "MP4", "AVI", "MKV", "MOV", "FLV" <i>(3GP is not supported)</i>
	Read and write peripheral device data of the in-vehicle information system via the USB port.
	Support and complete certification for Apple CarPlay and Android Auto.
	Enable bidirectional communication with MTK2715, including: Bidirectional communication for data and commands OTA upgrades Reset and power enable control Interface options including SPI, UART, and GPIO
	Enable communication with the DSP (Digital Signal Processor). Audio data transmission Control command transmission Reset and power enable
S32K314 MCU	System parameter configurations shall be persistently stored and may be saved to an EEPROM module via the I2C interface.
	The system shall support power and reset control for all functional modules, as well as power-on sequence control logic for the MCU.
	Output of debug information
	CAN data reception/transmission shall support CAN error detection, CAN transceiver enable control, and configuration of WAKE and STANDBY modes.
	The system shall support RTC (Real-Time Clock) modification and power-off time preservation.
	The system shall support interrupt detection and handling for abnormal and emergency event inputs.
	The system shall support voltage monitoring and control handling.
	The system shall support low power consumption and sleep wake-up functionality.
	The system shall be equipped with a watchdog mechanism.
	Driving diagnostic logging / Implementation of self-diagnostic functionality (including user interface) / System reset capability / Fail-safe operation architecture.
Others	CAN packet reception/transmission shall have an error rate and packet loss rate no greater than 20 ppm, and any erroneous or lost signals shall be recovered within 3 seconds.
	The system shall include an error diagnosis mechanism capable of reading hardware error codes, as well as an error handling mechanism to diagnose basic hardware functionality, including processor, memory, audio/video processing, I/O interfaces, and communication interfaces.

4 Product appearance

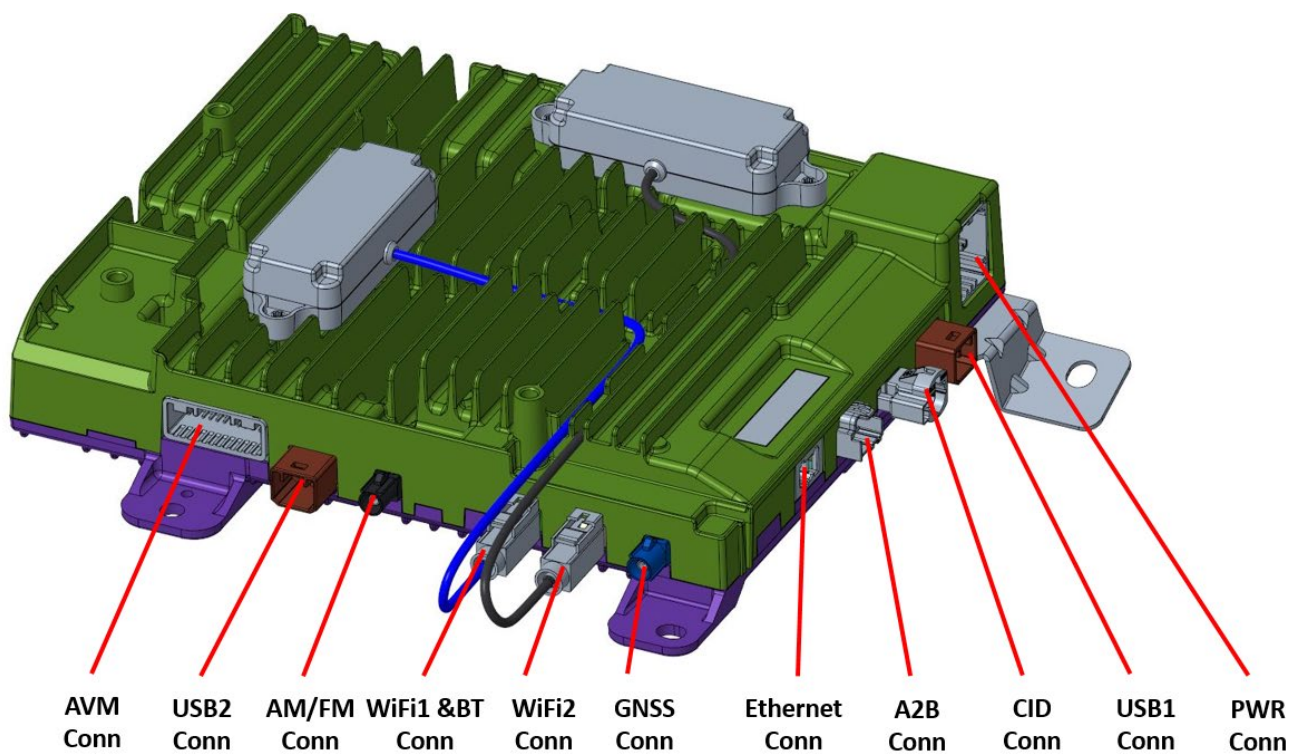
4.1 IVI ECU Product appearance

1. DIMENSION AND DESCRIPTION



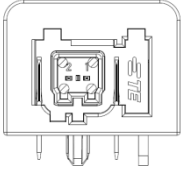
5 Interface list

5.1 IVI ECU interface list



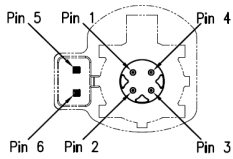
5.1.2 IVI ECU PIN Definition

100Base-T1ETH CONN



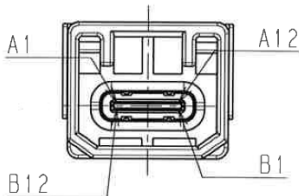
PIN NO.	PIN NAME	I/O	SIGNAL LEVEL	DESCRIPTIONS	CONNECT TO	CABLE TYPE	IMPEDANCE	Remark
1	TRX_M_1	I/O	7~9V	Signal	Tbox/gateway	Shielded twisted pair	100Ω	
2	TRX_P_1	I/O	7~9V	Signal	Tbox/gateway	Shielded twisted pair	100Ω	

CID& Cluster CONN



PIN NO.	PIN NAME	I/O	SIGNAL LEVEL	DESCRIPTIONS	CONNECT TO	CABLE TYPE	IMPEDANCE	Remark
1	HMTD_DOUT0_N	O	-0.3~1.32V	Signal	CID display	Shielded twisted pair	100Ω	
2	HMTD_DOUT1_N	O	-0.3~1.32V	Signal	CID display	Shielded twisted pair	100Ω	
3	HMTD_DOUT0_P	O	-0.3~1.32V	Signal	CID display	Shielded twisted pair	100Ω	
4	HMTD_DOUT1_P	O	-0.3~1.32V	Signal	CID display	Shielded twisted pair	100Ω	
5	PANEL_12VOUT1	O	12V	POWER	CID display	Unshielded twisted pair		
6	GND		0V(GND)	GND	CID display	Unshielded twisted pair		

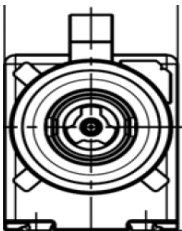
USB1 CONN



PIN NO.	PIN NAME	I/O	SIGNAL LEVEL	DESCRIPTIONS	CONNECT TO	CABLE TYPE	IMPEDANCE	Remark
A1	GND-1		0V(GND)		USB extension cable	Unshielded single core wire		
A2	SS_TX1_P	O	0~1.8V	Signal	USB extension cable	Shielded twisted pair	90Ω	
A3	SS_TX1_N	O	0~1.8V	Signal	USB extension cable	Shielded twisted pair	90Ω	
A4	VBUS1	O	5~20V	Vbus power	USB extension cable	Unshielded single core wire		

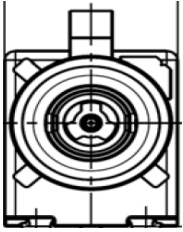
A5	USB3_CC1	I	0~9V	Signal	USB extension cable	Unshielded single core wire		
A6	USB2_DP	I/O	0~3.3V	Signal	USB extension cable	Shielded twisted pair	90Ω	
A7	USB2_DN	I/O	0~3.3V	Signal	USB extension cable	Shielded twisted pair	90Ω	
A8	NC							
A9	VBUS2	O	5~20V		USB extension cable	Unshielded single core wire		
A10	USB3_RX2_N	I	0~1.8V	Signal	USB extension cable	Shielded twisted pair	90Ω	
A11	USB3_RX2_P	I	0~1.8V	Signal	USB extension cable	Shielded twisted pair	90Ω	
A12	GND-2		0V(GND)	GND	USB extension cable	Unshielded single core wire		
B1	GND-3		0V(GND)	GND	USB extension cable	Unshielded single core wire		
B2	SS_TX2_P	O	0~1.8V	Signal	USB extension cable	Shielded twisted pair	90Ω	
B3	SS_TX2_N	O	0~1.8V	Signal	USB extension cable	Shielded twisted pair	90Ω	
B4	VBUS3	O	5~20V	Vbus power	U USB extension cable	Unshielded single core wire		
B5	USB3_CC2	I	0~9V	Signal	USB extension cable	Unshielded single core wire		
B6	USB2_DP	I/O	0~3.3V	Signal	USB extension cable	Shielded twisted pair	90Ω	
B7	USB2_DN	I/O	0~3.3V	Signal	USB extension cable	Shielded twisted pair	90Ω	
B8	NC				USB extension cable			
B9	VBUS4	O	5~20V	Vbus power	USB extension cable	Unshielded single core wire		
B10	USB3_RX1_N	I	0~1.8V	Signal	USB extension cable	Shielded twisted pair	90Ω	
B11	USB3_RX1_P	I	0~1.8V	Signal	USB extension cable	Shielded twisted pair	90Ω	
B12	GND-4		0V(GND)		USB extension cable	Unshielded single core wire		

Wi-Fi&BT ANT CONN



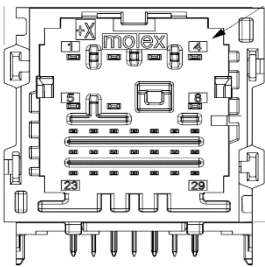
PIN NO.	PIN NAME	I/O	SIGNAL LEVEL	DESCRIPTIONS	CONNECT TO	CABLE TYPE	IMPEDANCE	Remark
1	WiFi_BT_ANT	I/O		RF Signal	WiFi_BT_ANT	Single core RF cable	50Ω	

Wi-Fi ANT CONN



PIN NO.	PIN NAME	I/O	SIGNAL LEVEL	DESCRIPTIONS	CONNECT TO	CABLE TYPE	IMPEDANCE	Remark
1	WiFi_ANT	I/O		RF Signal	WiFi_ANT	Single core RF cable	50Ω	

Power/CAN/GPIO

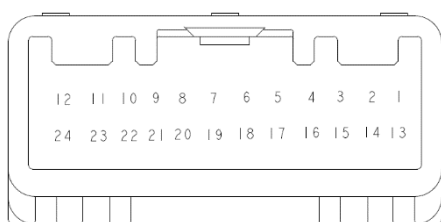


PIN NO.	PIN NAME	I/O	SIGNAL LEVEL	DESCRIPTIONS	CONNECT TO	CABLE TYPE	IMPEDANCE	Remark
1	VCC_SW_IN	I	9 ~ 16V	POWER_External power supply	Body power cord	Unshielded single core wire		
2	VCC_SW_IN	I	9 ~ 16V	POWER_External power supply	Body power cord	Unshielded single core wire		
3	VCC_SW_IN	I	9 ~ 16V	POWER_External power supply	Body power cord	Unshielded single core wire		
4	PS_GND	I	0V	GND_External ground	Body power cord	Unshielded single core wire		
5	PS_GND	I	0V	GND_External ground	Body power cord	Unshielded single core wire		
6	PS_GND	I	0V	GND_External ground	Body power cord	Unshielded single core wire		
8	PS_GND	I	0V	GND_External ground	Body power cord	Unshielded single core wire		
9	NC							
10	NC							

11	NC							
12	CAN1_CANH_OUT	I/O	2.5 ~ 5V	CAN_H	CAN BUS	Shielded twisted pair		
13	CAN1_CANL_OUT	I/O	0 ~ 2.5V	CAN_L	CAN BUS	Shielded twisted pair		
14	NC							
15	IGN_ON	I	0 ~ 16V	ACC	ACC body line	Unshielded single core wire		
16	MCU_UART1_RX	I/O	3.3V	Uart MCU port	For debug use only	Unshielded single core wire		
17	MCU_UART1_TX	I/O	3.3V	Uart MCU port	For debug use only	Unshielded single core wire		
18	MT2715_UART0_RXD	I/O	3.3V	MT2715_UART_RX	For debug use only	Unshielded single core wire		
19	MT2715_UART0_TXD	I/O	3.3V	MT2715_UART_TX	For debug use only	Unshielded single core wire		
20	CAN0_CANH_OUT	O	2.5 ~ 5V	CAN_H	CAN BUS	Shielded twisted pair		
21	CAN0_CANL_OUT	O	0 ~ 2.5V	CAN_L	CAN BUS	Shielded twisted pair		
22	NC							
23	MCU_JTAG_TCLK_SWD_CLK_CONN	I	3.3V	MCU burning code	For debug use only	Unshielded single core wire		
24	MCU_JTAG_TMS_SWD_DIO_CONN	I/O	3.3V	MCU burning code	For debug use only	Unshielded single core wire		
25	KPROW0	I/O	0~1.8V	SoC code burning	For debug use only	Unshielded single core wire		
26	KPCOLO	I/O	0~1.8V	SoC code burning	For debug use only	Unshielded single core wire		
27	NC							
28	NC							
29	EXTERNAL_RST_IN	I	0 ~ 3.3V	External reset	From other EC U	Unshielded single		

					core wire		
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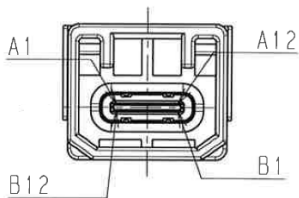
AVM CONN



PIN NO.	PIN NAME	I/O	SIGNAL LEVEL	DESCRIPTIONS	CONNECT TO	CABLE TYPE	IMPEDANCE	Remark
1	DVR_CVBS_IN	I	0~1.2V	DVR signal	DVR ECU for electric bus	isolation line	75Ω	
2	DVR_CVBS_GND	I	0V	DVR signal ground	DVR ECU for electric bus	isolation line		
3	NC							
4	NC							
5	VIN_4P	I	0 ~ 1.2V	Camera signal _P	TVI Camera (AVM_Rear)	Shielded twisted pair	100Ω	
6	VIN_4N	I	0 ~ 1.2V	Camera signal _N	TVI Camera (AVM_Rear)	Shielded twisted pair	100Ω	
7	VIN_3P	I	0 ~ 1.2V	Camera signal _P	TVI Camera (AVM_Right)	Shielded twisted pair	100Ω	
8	VIN_3N	I	0 ~ 1.2V	Camera signal _N	TVI Camera (AVM_Right))	Shielded twisted pair	100Ω	
9	VIN_2P	I	0 ~ 1.2V	Camera signal _P	TVI Camera (AVM_Left)	Shielded twisted pair	100Ω	
10	VIN_2N	I	0 ~ 1.2V	Camera signal _N	TVI Camera (AVM_Left)	Shielded twisted pair	100Ω	
11	VIN_1P	I	0 ~ 1.2V	Camera signal _P	TVI Camera (AVM_Front)	Shielded twisted pair	100Ω	
12	VIN_1N	I	0 ~ 1.2V	Camera signal _N	TVI Camera (AVM_Front)	Shielded twisted pair	100Ω	
13	NC							
14	NC							
15	NC							
16	NC							
17	GND		0V	Camera GND	TVI Camera (AVM_Rear)	Unshielded single core wire		
18	VCC_6V0_AVM_REAR	O	6V		TVI Camera (AVM_Rear)	Unshielded single core wire		
19	GND		0V	Camera GND	TVI Camera (AVM_Right)	Unshielded single core wire		
20	VCC_6V0_AVM_R	O	6V		TVI Camera (AVM_Right))	Unshielded single core wire		
21	GND		0V	Camera GND	TVI Camera (AVM_Left)	Unshielded single core wire		

22	VCC_6V0_AVM_L	O	6V		TVI Camera (AVM_Left)	Unshielded single core wire		
23	GND		0V	Camera GND	TVI Camera (AVM_Rear)	Unshielded single core wire		
24	VCC_6V0_AVM_F	O	6V		TVI Camera (AVM_Rear)	Unshielded single core wire		

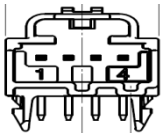
USB2 CONN



PIN NO.	PIN NAME	I/O	SIGNAL LEVEL	DESCRIPTIONS	CONNECT TO	CABLE TYPE	IMPEDANCE	Remark
A1	GND-1		0V(GND)		USB extension cable	Unshielded single core wire		
A2	NC							
A3	NC							
A4	J3_USB_VBUS	O	5V	Vbus power	USB extension cable	Unshielded single core wire		
A5	J3_USB_CC1	I	0~5V	Signal	USB extension cable	Unshielded single core wire		
A6	J3_USB_DP	I/O	0~3.3V	Signal	USB extension cable	Shielded twisted pair	90Ω	
A7	J3_USB_DN	I/O	0~3.3V	Signal	USB extension cable	Shielded twisted pair	90Ω	
A8	NC							
A9	J3_USB_VBUS	O	5V		USB extension cable	Unshielded single core wire		
A10	NC							
A11	NC							
A12	GND-2		0V(GND)	GND	USB extension cable	Unshielded single core wire		

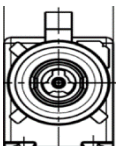
B1	GND-3		0V(GND)	GND	USB extension cable	Unshielded single core wire		
B2	NC							
B3								
B4	J3_USB_VBUS	O	5V	Vbus power	USB extension cable	Unshielded single core wire		
B5	J3_USB_CC2	I	0~5V	Signal	USB extension cable	Unshielded single core wire		
B6	J3_USB_DP	I/O	0~3.3V	Signal	USB extension cable	Shielded twisted pair	90Ω	
B7	J3_USB_DN	I/O	0~3.3V	Signal	USB extension cable	Shielded twisted pair	90Ω	
B8	NC				USB extension cable			
B9	J3_USB_VBUS	O	5V	Vbus power	USB extension cable	Unshielded single core wire		
B10	NC							
B11	NC							
B12	GND-4		0V(GND)		USB extension cable	Unshielded single core wire		

A2BCONN



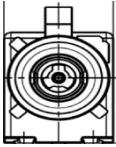
PIN NO.	PIN NAME	I/O	SIGNAL LEVEL	DESCRIPTIONS	CONNECT TO	CABLE TYPE	IMPEDANCE	Remark
1	GND							
2	A2B_DP	I/O	3~9V	A2B signal positive	A2B slave	twisted pair		
3	A2B_DN	I/O	3~9V	A2B Signal negative	A2B slave	twisted pair		
4	GND							

FM1/AM CONN



PIN NO.	PIN NAME	I/O	SIGNAL LEVEL	DESCRIPTIONS	CONNECT TO	CABLE TYPE	IMPEDANCE	Remark
1	AM/FM	I		RF Signal	AM/FM_ANT	Single core RF cable	50Ω	

GNSS CONN



PIN NO.	PIN NAME	I/O	SIGNAL LEVEL	DESCRIPTIONS	CONNECT TO	CABLE TYPE	IMPEDANCE	Remark
1	GNSS	I		RF Signal	GNSS_ANT	Single core RF cable	50Ω	

6 Instructions for use

Install the Micro SD card on the IVI host as shown in the diagram, connect the AVM Camera to the host, connect the USB Type C body cable, FM antenna, GNSS antenna, vehicle Ethernet, A2B signal cable, HSD screen cable and power cable to complete the installation.

