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Disclaimer of Warranties and Limitation of Liabilities

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Auro will not be liable for any direct damages or for any special, incidental, or indirect damages or for any economic consequential damages (including lost profits).

IMPORTANT

Before operating or maintaining this unit, please read this manual carefully, paying attention to the safety warnings and precautions.

For Services and Support:

www.aurodiag.com

support@aurodiag.com

For technical assistance in all other markets, please contact your local distributor.

Contents

1 Safety Precautions

The Auro UP400 has been specially designed to help automotive technicians maintaining and servicing modern vehicles.

To avoid personal injury or damage to the vehicles, please read this manual first and observe the following safety precautions whenever working on a vehicle.

Make sure:

- The diagnosis or service is performed in a safe environment.
- The vehicle is operated in a well-ventilated work area.
- The vehicle parts and the UP400 components are welded at a constant temperature.
- The vehicle parts and the UP400 components are welded when powered off and grounded.
- The UP400 is dry, clean and free from oil, water, grease and dust.
- Electrostatic interference is avoided during operation. If a failure occurs due to electrostatic interference, please try to operate again.

2 Introduction

The UP400 is specially designed to read transponder data (including Mercedes Benz infrared smart key), clone and generate exclusive keys, read/write on-board EEPROM data, and read/write Freescale 9S12 MCUs. By working with diagnostic tool and PC that are both loaded with programmer software, the UP400 can read/write transponder data quickly and accurately.

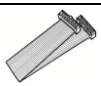
Specifications

Table 2-1 *Specifications*

Item	Description
Operating Temperature	-10℃ ~ 85℃ (14℉ ~ 185℉)
Storage Temperature	-20℃ ~ 85℃ (-4℉ ~ 185℉)
Port	Type B-USB, DB26, DC12
Input Voltage	5 VDC, 12VDC
Operating Current	< 500 mA
Maximum Consumption	2.5 W
Device Dimensions (L*W*H)	168 mm * 98 mm * 30 mm
Net Weight	520 g

Accessories Included

	APB101 – EEPROM Adaptor

	APA002 – EEPROM Socket
	APB102 – Mercedes Infrared Cable
	APB103 – MCU_PLCC52 Adaptor (for PC)
	APB104 – MCU_QFP64 Adaptor
	APB105 – MCU_QFP80 Adaptor
	APB106 – MCU_QFP112 Adaptor
	APB107 – MCU_QFP144 Adaptor
	APB108 – MCU_QFP176 Adaptor
	APB109 – MCU_QFP32 Adaptor (for PC)
	APB110 – MCU_QFP48 Adaptor (for PC)
	APB111 – MCU_SO28 Adaptor (for PC)
	APA101 – Spare Signal Cable

	User Manual
	APC101 – USB Cable (Standard USB – TypeB USB)
	APA103 – EEPROM Clamp
	APA104 – ECU Cable
	APA105 – MCU Cable
	APA106 – MC9S12 Cable

Components and Ports

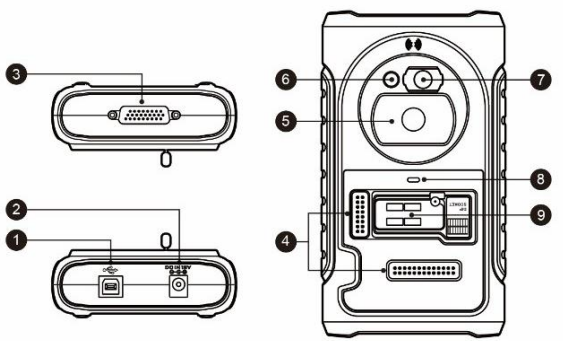


Figure 2-1 *UP400 Views*

1. USB Port – provides data communication and power supply.
2. DC Port – provides 12 VDC power supply

3. Connection Port – connects five components
4. Cross-shaped Signal Pin – places MCU board, MCU spare cable or DIY signal connection
5. Vehicle Key Slot – holds the vehicle key
6. Vehicle Transponder Slot – holds the transponder
7. Mercedes Infrared Slot – holds Mercedes vehicle key
8. Status Indicator – indicates the current operating status
9. Locker – places EEPROM component chip or socket and lock it

USB Port

The Type B USB port provides data communication and power supply for handheld device, PC and UP400.

DC Port

DC Port is used to provide 12 V power supply for the UP400.

Connection Port

Five components can be connected to this port: Mercedes Infrared Cable, Vehicle Remote Cable, ECU Cable, MCU Cable and MC9S12 Cable.

1. Vehicle Remote Cable

Table 2-2 *Definitions of Vehicle Remote Cable*

No.	Color	Definition	Pin correspond to DB26	Note
1	Red	VCC5V	16	
2	Black	GND	3/10/25	

3	Blue and White	REMOTE_MISO	14	
4	Gray and White	REMOTE_MOSI	5	
5	Brown and White	REMOTE_CLK	23	
6	Green and White	REMOTE_RX_CS	15	

2. ECU Cable

Table 2-3 *Definitions of ECU Cable*

No.	Color	Definition	Pin correspond to DB26	Note
1	Red	VCC12V	7	
2	Black	GND	25	
3	Green	IGN	/	
4	Orange	CANL	8	
5	Blue	CANH	17	
6	Brown	BOOTM	/	
7	Yellow	K	18	
8	White	LIN	26	

3. MCU Cable

Table 2-4 *Definitions of MCU Cable*

No.	Color	Definition	Pin correspond to DB26	Note
1	Red and White	VPP1	20	
2	Red and Black	VPP2	12	
3	Red and Yellow	+12V	7	
4	Red and Blue	VPPR	/	
5	Black	GND	25	
6	White	S1	14	
7	Brown	S2	5	
8	Gray	S3	23	
9	Blue	S4	11	
10	Red	S5	21	
11	Orange	S6	13	
12	Purple	S7	4	
13	Yellow	S8	19	
14	Green	S9	2	
15	Black	GND	10	Shielded Twisted
16	White	OSC	1	Shielded Twisted

4. MC9S12 Cable

Table 2-5 *Definitions of MC9S12 Cable*

No.	Color	Definition	Pin correspond to DB26	Note
1	Red	+5V	16	
2	Black	GND	25	
3	Green	XCLKS	2	
4	Blue	T/R	11	
5	Yellow	RESET	19	
6	Black	GND	10	Shielded Twisted
7	White	OSC	1	Shielded Twisted

Cross-shaped Signal Pin

The Cross-shaped signal pin is used to place MCU board, MCU spare cable or DIY signal cable to read or write MCU and ECU chips.

Vehicle Key Slot

It is used to hold the vehicle key to read or write vehicle key information.

Transponder Slot

It is used to hold the transponder to read or write transponder information.

Mercedes Infrared Slot

It is used to hold Mercedes vehicle key to read or write Mercedes vehicle key information.

Status Indicator

The Status Indicator shows the current operating status of the UP400. See *Table 2-6* for detailed description.

Table 2-6 *Description of the Status Indicator*

Indicator	Status	Description
On	Light Green	Powered on and default
	Flash Green	Communication
	Light Red	Error

Locker

It is used to place EEPROM chip or socket to read or write EEPROM information.

EEPROM Read/Write Transponder Coverage

Chip Type	Name	Chip Type	Name
ATMEL	AT24C01	ATMEL	AT24C1024
ATMEL	AT24C02	ATMEL	AT24C128_1.8
ATMEL	AT24C04	ATMEL	AT24C256_1.8
ATMEL	AT24C08	ATMEL	AT24C512_1.8
ATMEL	AT24C16	ATMEL	AT24C01A
ATMEL	AT24C32	ST	ST24x01/ST25x01
ATMEL	AT24C64	ST	ST24x02/ST25x02
ATMEL	AT24C128	ST	ST24x04/ST25x04
ATMEL	AT24C256	ST	ST24x08/ST25x08
ATMEL	AT24C512	ST	ST24x16/ST25x16

Chip Type	Name	Chip Type	Name
ST	M24C01	ATMEL	AT25640
ST	M24C02	ATMEL	AT25128
ST	M24C04	ATMEL	AT25256
ST	M24C08	ATMEL	AT25512
ST	M24C16	ATMEL	AT25010_1.8
ST	M24C32	ATMEL	AT25020_1.8
ST	M24C64	ATMEL	AT25040_1.8
FAIRCHILD	NM24C16U	ATMEL	AT25080_1.8
FAIRCHILD	NM24C16UT	ATMEL	AT25160_1.8
FAIRCHILD	NM24C17U	ATMEL	AT25320_1.8
FAIRCHILD	NM24C17UT	ATMEL	AT25640_1.8
MICROCHIP	85C72	ATMEL	AT25128_1.8
MICROCHIP	85C82	ATMEL	AT25256_1.8
MICROCHIP	85C92	ST	M95010
NXP	PCF8582C	ST	M95020
NXP	PCF8594C	ST	M95040
NXP	PCF8598C	ST	M95080
ATMEL	AT25010	ST	M95160
ATMEL	AT25020	ST	M95320
ATMEL	AT25040	ST	M95640
ATMEL	AT25080	ST	M95128
ATMEL	AT25160	ST	M95256

Chip Type	Name	Chip Type	Name
ATMEL	AT25320	ST	M95512
MICROCHIP	25xx040	NATIONAL	NM93C13
MICROCHIP	25xx080	NATIONAL	NM93C14
MICROCHIP	25xx160	NATIONAL	NM93C14TM8
MICROCHIP	25xx320	MICROCHIP	93C46X
MICROCHIP	25xx640	MICROCHIP	93C46A
MICROCHIP	25xx040_TSSOP	MICROCHIP	93C46
MICROCHIP	25xx320_TSSOP	MICROCHIP	93C46AX
MICROCHIP	25xx640_TSSOP	MICROCHIP	93C46BX_93C46CX
CATALYST	CAT25C01	MICROCHIP	93C56A
CATALYST	CAT25C02	MICROCHIP	93C56
CATALYST	CAT25C04	MICROCHIP	93C66A
CATALYST	CAT25C08	MICROCHIP	93C66
CATALYST	CAT25C16	MICROCHIP	93C76A
CATALYST	CAT25C32	MICROCHIP	93C76
CATALYST	CAT25C64	MICROCHIP	93C86A
CATALYST	CAT25C128	MICROCHIP	93C86
CATALYST	CAT25C256	ATMEL	AT93C46A
ST	M35080	ATMEL	AT93C46
XICOR	X5043	ATMEL	AT93C46R

Chip Type	Name	Chip Type	Name
XICOR	X5045	ATMEL	AT93C56
XICOR	X25043	ATMEL	AT93C57
XICOR	X25045	ATMEL	AT93C66
MICROCHIP	93C06	ATMEL	AT93C76
ATMEL	AT93C86	SONY	CXK1011
NATIONAL	NM93CS06	SONY	CXK1012
NATIONAL	NM93CS46	SONY	CXK1013
NATIONAL	NM93CS56	Seiko	S_24H30
NATIONAL	NM93CS66	Seiko	S_24H30_SOP8
FAIRCHILD	FM93CS46T	Seiko	S_24H45
ST	M93C46	Seiko	S_24H45_SOP8
ST	M93C56	Seiko	S_24S30
ST	M93C66	Seiko	S_24S45
ST	M93C76	TOSHIBA	TC89101
ST	M93C86	TOSHIBA	TC89102
ST	M93S46	TOSHIBA	TC89121
ST	M93S56	TOSHIBA	TC89122
ST	M93S66	Xicor	X24C44
ATMEL	AT59C11	TMC	TMC93LC56
ATMEL	AT59C22	TMC	TMC93LC57
ATMEL	AT59C13	TMC	TMC93LC66
OKI	MSM16911	TMC	TMC93LC86

Chip Type	Name	Chip Type	Name
TMC	TMC93LC46		

MCU/ECU Read/Write Transponder Coverage

Chip Type	Name
FREESCALE	MC9S12DG128
FREESCALE	MC9S12DJ64
FREESCALE	MC9S12DG256
FREESCALE	MC9S12DT128
FREESCALE	MC9S12DT256
FREESCALE	MC9S12XDP512
FREESCALE	MC9S12XET512
FREESCALE	MC68HC08AZ60
FREESCALE	MC68HC(9)08AB16A
FREESCALE	MC68HC908GR16A
FREESCALE	MC68HC(7)05X32
FREESCALE	MC68HC705E6
FREESCALE	MC68HC11E9
INFINEON	SAK-TC1766
INFINEON	SAK-TC1793
INFINEON	SAK-TC1796
INFINEON	SAK-TC1797

3 Product Troubleshooting

This part describes problems that you may encounter while using the UP400.

Vehicle Linking Error

A communication error occurs if the UP400 fails to communicate with the diagnostic tools. Please do the following check-ups:

- ✓ Verify that the diagnostic tool authorization is approved.
- ✓ Verify that the server works properly.
- ✓ Verify that the power LED light of the UP400 illuminates solid green.

PC Communication Error

A communication error occurs if the UP400 fails to communicate with PC. Please do the following check-ups:

- ✓ Verify that the power LED light of the UP400 illuminates solid green.
- ✓ Check if there is any firewall software interfering with the connection port or if a wrong USB port is being used.
- ✓ Check if the green status light for USB communication is blinking.

If these issues have been addressed, verified, and you are still having trouble, please contact technical supports for assistance.

4 Update

Software Update

This part describes two ways to update the software of the UP400.

Update via OtoSys Tablet

This function allows you to update the UP400 software via OtoSys tablet.

1. Connect the UP400 to OtoSys tablet via USB cable.
2. Verify the power LED light on the front panel illuminates solid green.
3. OtoSys tablet will automatically check the version information of the UP400.
4. Click the Update button on OtoSys tablet to update the software of the UP400 if there is any update available.

Update via PC

This function allows you to update the UP400 software via PC. Make sure the PC is connected to the Internet before using this function.

1. Connect the UP400 to a PC via USB cable.
2. Verify the power LED light on the front panel illuminates solid green.
3. Find and click Update Details from Windows Update Information.
4. The update agent will automatically check for available update online.
5. Press **Next** to install the newest firmware.
6. Press **Cancel** to exit.

5 Compliance Information

FCC COMPLIANCE **FCC ID: 2AN27PRGUP400**

This device complies with Part 15 of the FCC rules and Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

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

Cet appareil est conforme aux CNR exempts de licence d'Industrie Canada. Son fonctionnement est soumis aux deux conditions suivantes:

1. Ce dispositif ne peut causer des interferences; et
2. Ce dispositif doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.

⚠ **WARNING**

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE

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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

RF WARNING STATEMENT

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

The term “IC” before the radio certification number only signifies that IC technical specifications were met.

RoHS COMPLIANCE

This device is declared to be in compliance with the European RoHS Directive 2011/65/EU.

CE COMPLIANCE

This product is declared to conform to the essential requirements of the following Directives and carries the CE mark accordingly:

EMC Directive 2014/30/EU
R&TTE Directive 1999/5/EC
Low Voltage Directive 2014/35/EU

6 Warranty and Service

Limited One Year Warranty

Shenzhen HC Tech CO., Ltd. (the Company) warrants the original retail purchaser of this UP400 that should this product or any part thereof during normal usage and under normal conditions be proven defective in material or workmanship and results in product failure within 1 year period from the date of delivery, such defect(s) will be repaired, or replaced (with new or rebuilt parts) with Proof of Purchase, at the Company's option, without charge for parts or labor directly related to the defect(s).

The Company shall not be liable for any incidental or consequential damages arising from the use, misuse, or mounting of the device. Some states do not allow limitation on how long an implied warranty lasts, so the above limitations may not apply to you.

This warranty does not apply to:

1) Products subjected to abnormal use or conditions, accident, mishandling, neglect, unauthorized alteration, misuse, improper installation or repair or improper storage;
2) Products whose mechanical serial number or electronic serial number has been removed, altered or defaced;
3) Damage from exposure to excessive temperatures or extreme environmental conditions;
4) Damage resulting from connection to, or use of any accessory or other product not approved or authorized by the Company;
5) Defects in appearance, cosmetic, decorative or structural items such as framing and non-operative parts.
6) Products damaged from external causes such as fire, dirt, sand, battery leakage, blown fuse, theft or improper usage of any electrical source.

Service Information

If you have any questions, please contact your local distributor or visit our website at www.aurodiag.com.