ETAS ES2504

Integrated Diagnostic Tester



User Guide

www.etas.com

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1 Introduction

1.1 About this documentation

This documentation describes how to use the Hardware of the Integrated Diagnostic Tester ETAS ES2504 in versions ES2504.1, ES2504.2, and ES2504.3. The version ES2504.3 can be connected to a Wi-Fi or 5G network, while version ES2504.2 supports only Wi-Fi networks. The version ES2504.1 supports the Wi-Fi networks for the Chinese market. The other functionality and connections of the three versions are identical.

Following the introduction, which describes the most important areas of use and application possibilities, this documentation covers the installation and connection of the device, followed by information on maintenance and packaging. Available accessories, contact information, and legal notices round out the document.

1.2 About ES2504 Integrated Diagnostic Tester

The ES2504 is a next-generation Integrated Diagnostic Tester, specifically engineered for the end-of-line (EoL) stage of the vehicle manufacturing process. Mounted in the vehicle it serves as a robust and reliable diagnostic tester for modern vehicle architectures.

The device is designed to handle complex diagnostic tasks, flash programming, and calibration efficiently. Its rugged construction ensures durability in a demanding workshop environment. It supports all use cases, from testing smaller subsections of a vehicle to pre-shipment health checks.



1.3 Scope of application

The ES2504 can be used for the following tasks:

- DoIP communication
- CAN / CAN-FD communication
- Flash programming
- ECU diagnostics
- Wheel and headlight alignment (WAHA)
- Pre, post, and rolls diagnostics
- (Advanced) driver assistance systems (ADAS) calibration
- Final health check
- Sub-assembly test
- Distributed test for e.g., tire pressure monitoring systems (TPMS) or brake fluid at anti-lock braking systems (ABS)

1.4 Properties

The ES2504 is a versatile vehicle communication interface (VCI) for end-of-line processes like ECU diagnostics, flash programming, and calibration with the following properties:

- Automotive-capable product designed for high robustness and stability in workshop environments
- Flexible host connection via standard Ethernet (LAN), wireless LAN (WLAN), or 5G cellular + WLAN (option)
- High-performance chipset for demanding diagnostic applications and high data throughput
- User-replaceable parts subject to wear and tear, such as the quick-exchange DLC cable
- Advanced power management with four distinct operating modes (ON, Suspend, Hibernate, OFF)
- Supports advanced wireless functions like "Wake-on-WLAN" and location-based triggers
- Integrated safety features, including an airbag detonation countermeasure
- Flexible power supply through the vehicle battery, an external power source, or the internal battery
- Firmware updates via ETAS hardware service packs
- No special drivers required for PC connection via standard network interfaces

1.5 Target audience and intended use

1.5.1 Target audience

The ES2504 may be assembled, operated, and maintained only if you have the necessary qualification and experience for this product. Incorrect operation or operation by users without sufficient qualification may lead to injuries or death or property damages.

1.5.2 Intended use

The ES2504 was developed and approved for applications in the automotive sector. Only operate the product as per its specifications. If the product is used in any other way, product safety is no longer ensured.

The principal operations of the device are to identify the vehicle's target configuration, select and download the appropriate programming data, program the vehicle components, then test the vehicle's electrical functionality. Test results are stored and made available for upload to the host network. Other use cases include diagnostic rectification and vehicle dynamic test cells.

The ES2504 is designed for the following applications:

- Identifying the vehicle's target configuration
- Establishing a connection to the host network to select and download the required programming data
- Programming the vehicle components and testing the vehicle's electrical functionality
- Saving and providing the test results and uploading them to the host network
- Performing diagnostic troubleshooting and tests on vehicle dynamics test benches

1.5.3 Application areas

The ES2504 is approved for use in the following areas:

- Interior
- Passenger compartment
- Trunk

- Laboratory
- Test bench
- Along automotive assembly and production lines

Do not operate the ES2504 in a wet or damp environment.

Do not operate the ES2504 in potentially explosive atmospheres.

1.5.4 Technical condition

The ES2504 is designed in accordance with state-of-the-art technology. Only operate the product and its accessories if they are in perfect working order. Shut down a damaged product immediately. Do not open or alter the product. Only ETAS may make changes to the product.

1.6 Safety instructions and classification

Refer to the following safety instructions and the technical documentation available to download from the ETAS website www.etas.com. Keep the information provided in a safe place.

Failure to comply with the safety instructions may lead to the risk of damage to life and limb or property. The ETAS Group and its representatives shall not be liable for any damage or injury caused by improper operation or use of the product.

Only use the ES2504 if you have read and understood the information concerning safe operation and have the required qualifications and training for this product. If you have questions about safe operation, contact ETAS:

- Technical Support: www.etas.com/hotlines
- ETAS contact partners by region: www.etas.com/contact

The product is only approved for the applications described in the technical documentation. When using and operating this product, all applicable regulations and laws must be observed.

ETAS products made available as beta versions or prototypes of firmware, hardware and/or software are to be used exclusively for testing and evaluation purposes. These products may not have sufficient technical documentation and not fulfill all requirements regarding quality and accuracy for market-released series products. The product performance may therefore differ from the product description. Only use the product under controlled testing and evaluation conditions. Do not use data and results from beta versions without prior and separate verification and validation and do not share them with third parties.

Before starting up the ES2504, check whether there is a Known Issue Report (KIR) for that product version: www.etas.com/kir (password: KETASIR). Note the information given in the report.

Program codes or program control sequences that are created or changed via ETAS products, as well as all types of data obtained through the use of ETAS products, must be checked for their reliability and suitability prior to use or distribution. Only use these codes or sequences in public areas (e.g., in road traffic) if you have ensured that the application and product settings are safe through testing in self-contained and designated testing environments and circuits.

This ETAS product allows you to influence safety-relevant systems or data (e.g. in motor vehicles, vehicle components and test benches). In the event of a malfunction or a hazardous situation, it must be possible to put the system into a safe state (e.g., emergency stop or emergency operation).

1.6.1 Classification of safety messages

Safety messages warn of dangers that can lead to personal injury or damage to property:



DANGER

DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury.



WARNING

WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury.



CAUTION

CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE indicates a situation that, if not avoided, could result in damage to physical property.

ATTENTION

ATTENTION indicates a situation that, if not avoided, could result in damage to digital property like data loss, data corruption and system vulnerability.

1.6.2 Assembly

Only install, connect, disconnect and cable ETAS products and components when they are de-energized.

1.6.2.1 Installation location



CAUTION

Class A product

The ES2504 is a Class A equipment. It may cause radio interference in living areas. In this case, the user may be required to take appropriate measures.



CAUTION

Class A product

This product is not intended for use in residential environments and might not provide adequate protection to radio reception in such environments.

1.6.2.2 Securing the product

The housing must not be damaged while securing the product. Only secure the product to fastening elements intended for this.



WARNING

Risk of injury due to inadequate fastening

- Secure the product so it does not move uncontrollably.
- Only use carrier systems and fastening materials that can accommodate the static and dynamic forces of the product and are suitable for the ambient conditions.

1.6.2.3 Ventilation

- Protect the product against direct solar radiation and other sources of heat.
- Ensure that there is sufficient air circulation for efficient heat exchange.
  - Do not cover the ventilation slots.
  - Do not operate the product in enclosed areas.

1.6.3 Operation

Keep the product's operating system and all software up to date with the latest official versions and install security patches immediately. You can find information about updating the firmware in the chapter ""Firmware update" on page 39".



CAUTION

Only use the equipment as described in this manual. Only use ETAS recommended attachments. Use of non-recommended parts may invalidate the equipment warranty.



DANGER

Risk of distraction

Use of the ES2504 may distract the driver.

- Focus on the traffic whilst driving.
- Do not carry out any actions on the product whilst driving.



WARNING

Fire Hazard

The ES2504 contains a lithium battery. Damaged lithium batteries may cause heat, fire or short circuits.

If the battery is damaged, shut the product down immediately and contact ETAS Support: www.etas.com/hotlines

Damaged or defective lithium batteries must under no circumstances be shipped by regular parcel service or air freight.

The Material Data Safety Sheet for the battery pack can be found in the product-specific area on the ETAS website: www.etas.com/shipment_dangerous_goods.

CAUTION

Class 1 laser radiation

This product contains an integrated Class 1 laser scanner (IEC 60825-1:2014) and is safe under reasonably foreseeable conditions of use. To avoid potential hazards, always observe the following safety instructions:

- Do not look directly into the laser beam or point it at other people. Although this product is classified as Class 1, direct and prolonged viewing of the light beam should be avoided.
- Do not attempt to open, service, or modify the scanner module. The scanner contains no user-serviceable parts. Opening the scanner housing may expose you to hazardous laser radiation.
- Use of controls or adjustments or performance of procedures other than those described in these instructions may result in hazardous radiation exposure.

Statement of compliance with US FDA requirements:

This product complies with FDA performance standards for laser products except for conformance with IEC 60825-1, Edition 3, as described in “Laser Notice No. 56” dated May 8,. 2019.

1.6.4 Electrical connection

Electrical safety and power supply

- Only connect the ES2504 to electric circuits with safety extra-low voltage in accordance with IEC 61140 (devices of class III) within the voltage limits for accessible parts as per IEC 62368-1:2018.
- Comply with the connection and setting values (see chapter "Technical specification").

Connection to the power supply



WARNING

Risk to life from electric shock

If an unsuitable power supply is used, this may generate a hazardous electrical voltage.

- Use a power supply that is permitted for the product.

To de-energize the ES2504

Disconnect the ES2504 from the power supply in one of the following ways:

- Disconnect the cable from the vehicle.
- Remove the ES2504 from the docking station.
- Press the power button for 15 seconds to switch off the ES2504.

1.6.5 Cables and accessories

Cables

- Only use ETAS cables, cables recommended by ETAS or other cables certified for the application.
- Route the cables such that they are protected against abrasion, damage, deformation and kinking.
- Do not place any objects on the cables.
- Do not use any damaged cables.
- The connector and connection must not be dirty.
- The connector and connection must be compatible.
- Correctly align the connector with the connection.
- Do not connect the connector and connection by force.

Accessories

Use ETAS accessories, accessories recommended by ETAS or other accessories certified for the application.

For detailed information about cables and accessories, see “"Accessories and order information" on page 41”.

1.7 Unpacking

Carefully unpack the ES2504. The packaging should either be retained or disposed of in an environmentally friendly manner, in accordance with local regulations. We recommend keeping the packaging in case the unit needs to be returned for service or repair.

1. Prepare workspace:

   Unpack in a clean, dry, well-lit area with enough space for the equipment and avoid static damage or physical harm.

2. Open package:

   Use appropriate tools to carefully open the box without damaging the contents.

3. Verify contents:

   Compare the items with the packing list "Contents of Package" to ensure all components are present.

4. Inspect for damage:

   Visually check each item for physical damage. If found, document and report it to the Technical Support at www.etas.com/hotlines.

2 Product overview

2.1 Graphical overview of elements

2.1.1 Front side



Fig.	Connection Key	Description
1	Top black	Activate bar code scanner
2	Green	OK
3	Red	Not OK
4	Yellow	Return
5	Blue	Abort
6	Bottom black	Power on/off

2.1.2 Right side



Fig.	Connection	Description
7	USB-C	USB-C cable
8	Ethernet (LAN)	RJ45 cable
9	USB-A (3.0)	USB-A cable
10	HDMI	HDMI cable
11	Audio jack	3.5 mm audio plug (headphones)
12	SIM card slot	SIM card

2.1.3 Left side

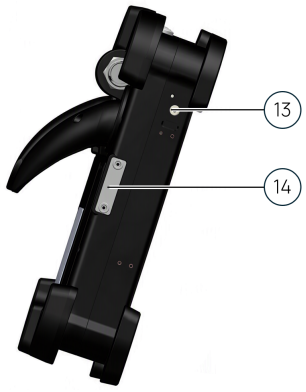


Fig.	Connection	Description
13	External power jack	External power supply cable
14	DLC docking pegs	Magnetic feature to secure DLC when not in use

2.1.4 Rear side

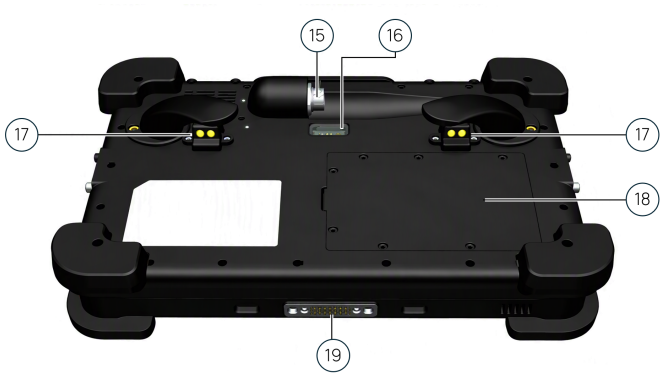


Fig.	Connection	Description
15	DLC connector	Vehicle-specific DLC cable for CAN/CAN FD connection and charging
16	VIN scanner	Scanner for VIN (remove protective cover before use)
17	Charging pins	Interface for charging station / DLC cable connection for diagnostic communication and charging from the vehicle
18	Battery compartment cover	Cover is secured with seven screws
19	Engineer docking station pins	Interface to the engineer docking station for charging and USB connection

2.1.5 Top side

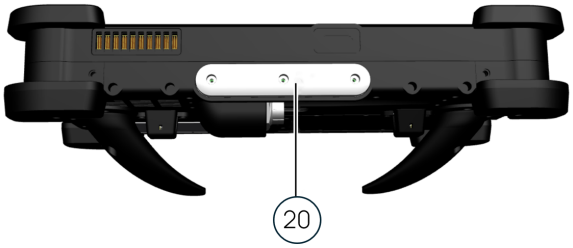


Fig.	Connection	Description
20	LED status indicator and IrDA Transceiver	Indicates charging and sequence status / receives IrDA beacon wake-up and location data

2.2 Compatibility

2.2.1 System requirements

For the configuration of the product as well as performing vehicle communications and diagnostics, check with ETAS for the latest applicable software versions:

- Windows 11 IoT Enterprise LTSC – ES2504 Customized
- Hardware Services Installer
- ES2504 API
- Vehicle Test and Configuration Solution or
- Vehicle Test and Configuration Solution Plus.

2.2.2 Wireless interfaces

Interface	Standard
Wi-Fi	IEEE 802.11a, b, d, e, g, h, i, k, n, r, u, v, w, ac, ax, be
Bluetooth	5.4 (disabled by default)
Cellular	5G Cellular support (ES2504.3 only – channels n48, n77, n78, n79 – regional restrictions apply)
NFC	Near Field Communication – 13.56MHz - ISO 14443-A/B
IrDA	SIR, 1158.2kbps transceiver and remote wake-up function

2.2.3 Sensing devices

Sensor	Function
Microphone	Audio input
Gravity sensor	Rotation detection

2.2.4 Compatible products

For detailed information about cables and accessories, see “"Accessories and order information" on page 41”.

3 Hardware setup

3.1 Transportation and storage

- Only transport and store the ES2504 with the protective flaps closed.
- Only transport the ES2504 individually.
- Do not transport the ES2504 by its connected cables. Use only its carrying handle.

3.2 Battery, charging and power states

3.2.1 Installation of the battery pack

The ES2504 is shipped with the battery pack uninstalled. Tools are provided in the carton for user installation.



WARNING

Fire Hazard

The product contains a lithium battery. Damaged lithium batteries may cause heat, fire or short circuits.

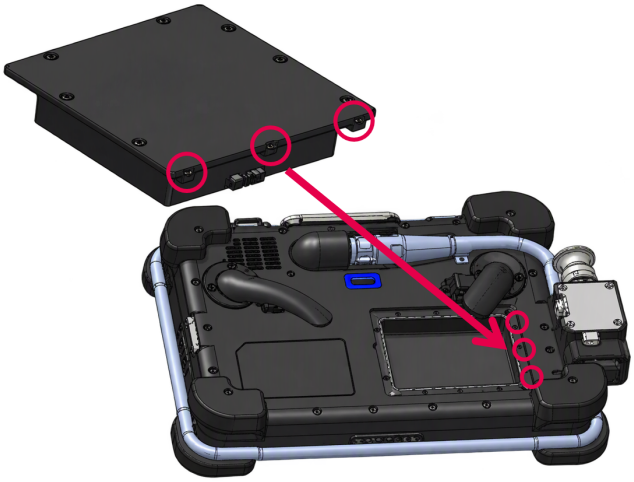
In the event of battery damage, the product must be taken out of service immediately, and ETAS Support must be contacted: www.etas.com/hotlines.

Damaged or defective lithium batteries must under no circumstances be transported via standard parcel courier or air freight services.

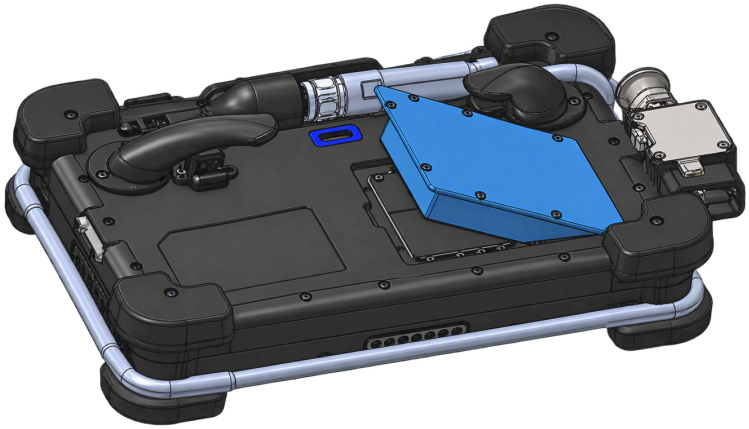
NOTICE

Care should be taken not to touch the main printed circuit board assembly within the unit when the battery is removed. ESD protective measures must be observed.

1. Align the locating lugs on the battery pack at a 45° angle with the mating features on the main unit.



2. Ensuring the electrical contacts of the battery pack are connected to their counterparts on the main unit, insert the battery pack as shown.



3. Secure the battery pack with the seven M2.5 fixings and tool provided.

3.2.2 Initial charging

Before first use: Charge the ES2504 to at least 90%. For optimized charging, use approved ETAS accessories or connect directly to the vehicle's DLC port.

3.2.3 Switching on

The ES2504 can be switched on by pressing the Power Button (6) located on the front keypad for 3 seconds.

After switching on, the unit will boot to Microsoft Windows™ desktop or a dedicated application according to the product's software configuration.



3.2.4 Power states

The following table describes how to enter and exit the different the power states of the ES2504.

> ***ATTENTION***
>
> A power button press of longer than 15 seconds will, on release, cause a forced hardware shutdown. This feature is not recommended in regular use. It should only be used for essential recovery if the recommended shutdown methods are unresponsive. When using this function, there is a possibility that the data on the SSD drive could become corrupted.

Power State (ACPI)	Screen Status	Power Button Press Duration [sec]	Action	Note
Power off (G2 / S5)	off	< 3	N/A	
	off	> 3	Power on	
Power on (S0)	on	< 3	N/A	
	on	3 -> 10	Enter sleep-/hibernate	According to power settings
	off	3 -> 10	Screen on	
	on	10 -> 15	Windows shut down	
	off	10 -> 15	Windows shut down	
	on	> 15	Forced hardware shutdown	
Sleep/hibernate (S1-S4)	off	3 -> 10	Resume	According to power settings

Advanced Configuration and Power Interface (ACPI) States Supported

State	Description
G0/S0/C0	**Full On:** CPU operating. Individual devices may be shut to save power. The different CPU operating levels are defined by Cx states.
GO/S0/Cx	**Cx state:** CPU manages C-states by itself and can be in low power state.
G1/S3	**Suspend-To-RAM (STR):** The system context is maintained in system DRAM, but power is shut to non-critical circuits. Memory is retained, and refreshes continue. All external clocks are shut off; RTC clock and internal clocks are still running.

State	Description
G1/S4	**Suspend-To-Disk (STD):** The context of the system is maintained on the disk. All power is then shut to the system except to the logic required to resume. Externally appears same as S5 but may have different wake events.
G2/S5	**Soft Off:** System context not maintained. All power is shut except for the logic required to restart. A full boot is required when waking.
G3	**Mechanical OFF:** System context not maintained. All power shut except for the RTC. No “Wake” events are possible because the system does not have any power. This state occurs if the user removes the batteries, turns off a mechanical switch, or if the system power supply is at a level that is insufficient to power the “waking” logic. When system power returns the transition will depend on the state just prior to the entry to G3.

3.3 Mounting and placement

CAUTION

Class A product

This product is not intended for use in residential environments and might not provide adequate protection to radio reception in such environments.

DANGER

Risk of injury due to inadequate fastening

- Secure the product so it does not move uncontrollably.
- Only use carrier systems and fastening materials that can accommodate the static and dynamic forces of the product and are suitable for the ambient conditions.

3.4 Connection to the power supply

WARNING

Risk to life from electric shock

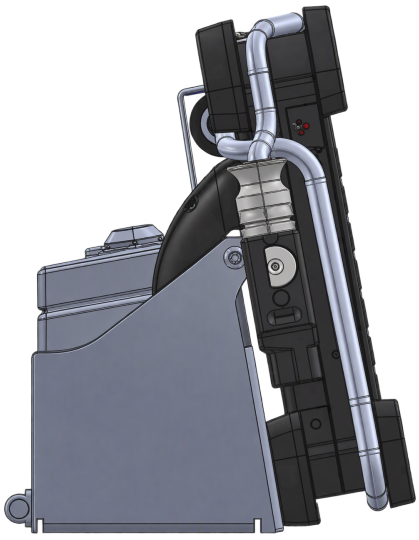
If an unsuitable power supply is used, this may generate a hazardous electrical voltage.

— Use a power supply that is permitted for the product.

The ES2504 is powered in three different ways: docking station, OBD connection, and DC jack connection,

3.4.1 Docking station

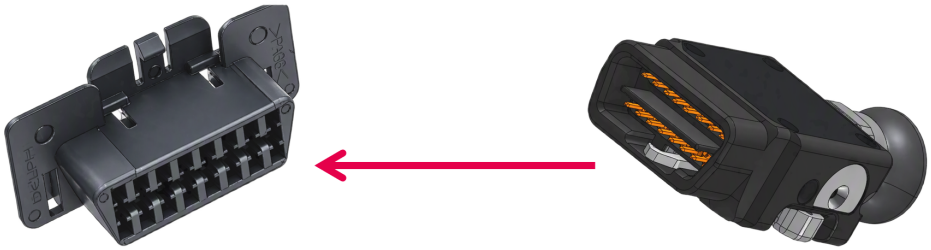
For optimized charging and when not connected to a vehicle, the ES2504 should be placed on its docking station as shown.





3.4.2 OBD connection

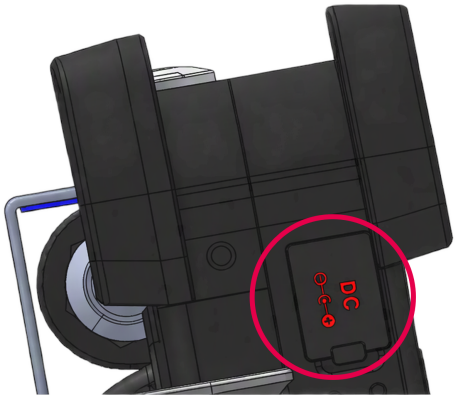
The ES2504 is powered when the Diagnostic Link Connector (DLC) is mated to the vehicle's OBD connector. It will charge at a reduced rate.



Diagnostic Link Connector (DLC) Vehicle OBD Port

3.4.3 DC jack connection

The ES2504 may also be powered and charged by connecting an ETAS approved AC adapter to the DC jack port.



4 Basic operation

4.1 DLC cable and connector

The cable and connector are used for data connection and power supply from a vehicle diagnostic port.

> **Note**
>
> Care should be taken not to touch the main printed circuit board assembly within the unit when the battery is removed. ESD protective measures must be observed.

4.1.1 Installation of the DLC cable

1. Align the arrow on the DLC cable connector with the arrow on the mating connector on the ES2504.



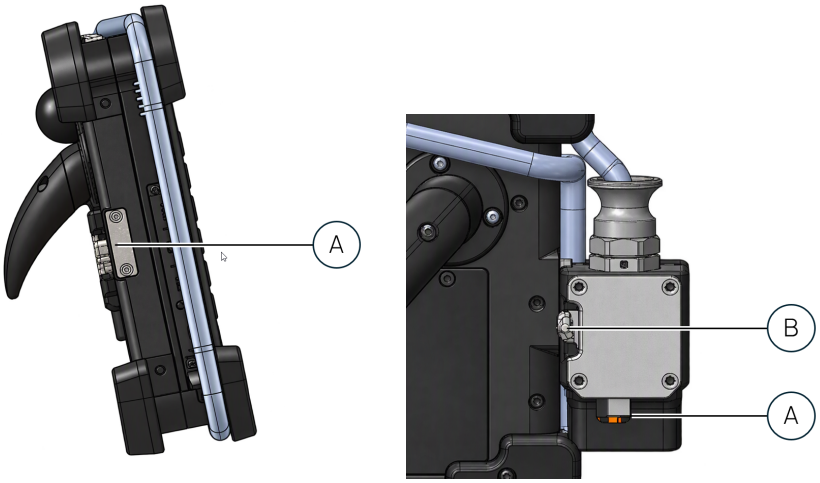
2. Push the DLC cable connector onto the mating part until it clicks and latches into place.



When not in use, the main DLC cable can be wrapped around the ES2504. For convenient cable wrapping, use the dedicated slots in the corner bumpers and secure the connector using the magnetic mounts on either side of the case (14).

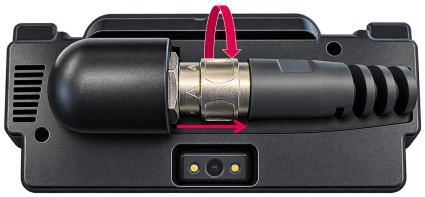
On select models, an indicator LED is integrated into the DLC plug. This LED lights up as soon as power is supplied by the vehicle, confirming a successful connection.

Some models have a sprung latch (A) which engages with a corresponding feature on the vehicle connector. A release button (B) is provided which must be depressed and held in while withdrawing the connector. The connector can be mated without pressing the button.



4.1.2 Removal of the DLC cable

To remove the DLC cable, rotate the connector ¼ turn counter-clockwise and pull the cable away from the ES2504.

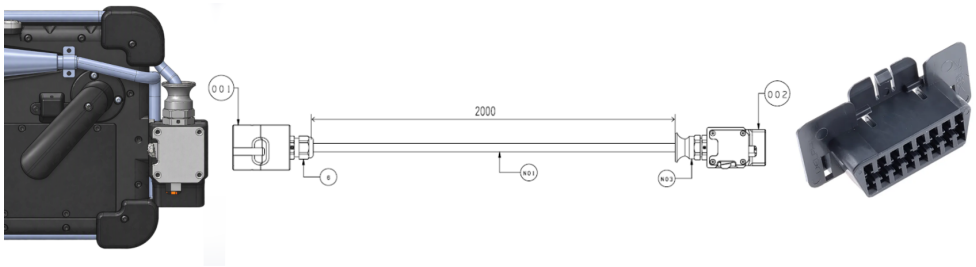


4.1.3 OBD extension cables

These cables are used to extend the OBD data connection and power supply between the vehicle diagnostic port and the main DLC of the ES2504.

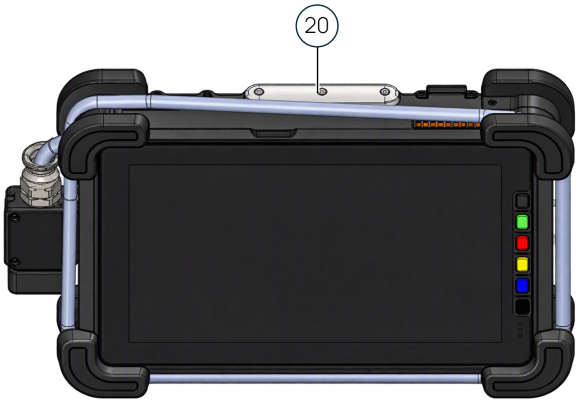
The OBD extension cables are available in several lengths. Refer to "Accessories and order information" on page 41.

An illustration of the 2 m version of the OBD extension cable is shown below.



4.2 LED status indicator and IrDA transceiver

The translucent cover (20) houses tri-color LED indicators (red/green/blue) and an IrDA transceiver. Configurable via the user's application software, this indicator is typically used to display system status, such as pass/fail results, charging states, activity (busy) status, or to signal required operator intervention.



4.2.1 Default LED status configuration

LED color	LED state	Description	Connection
Green	Solid	Fully charged	On charger
Green	Flashing	Charging	On charger
Yellow/orange	Flashing	Battery low – charge required	Off charger
Red	Solid	Battery critical – charge required	Off charger
Green	Solid	Passed sequence	On vehicle
Red	Solid	Failed sequence	On vehicle

5 Technical specification

5.1 Hardware specifications

5.1.1 Ambient conditions (connector covers fitted)

Operating temperature range	0 °C to +40 °C +32 °F to +104 °F
Battery charging temperature range	0 °C to +35 °C +32 °F to +95 °F
Storage temperature range (without packaging)	0 °C to +25 °C 32 °F to +77 °F
Max. relative humidity (non-condensing)	95 %
Max. altitude	4000 m / 13,000 ft.
Degree of contamination (IEC 60664-1, IEC 61010-1)	2
Protection rating (IEC 60529) (when closed)	IP65

5.1.2 Electrical data

Operating voltage range	8 V to 32 V DC
Max. current consumption	4 A
Typical current consumption (standby)	156 mA
Maximum voltage to ground or to all accessible parts (e.g. ECU housing, vehicle chassis)	32 V DC
Fuse	OBD 4 A PTC
Over voltage category (mains supply, IEC 60664-1)	I

5.1.3 Mechanical data

Dimensions (H x W x D)	323 x 225 x 91 mm 12.72 x 8.86 x 3.58 in
Weight	2.75 kg / 6.06 lb

5.1.4 Main battery

WARNING

Fire Hazard

The ES2504 contains a lithium battery. Damaged lithium batteries may cause heat, fire or short circuits.

If the battery is damaged, shut the product down immediately and contact ETAS Support: www.etas.com/hotlines

Damaged or defective lithium batteries must under no circumstances be shipped by regular parcel service or air freight.

To prevent irreparable damage to the main battery, observe the following operating requirements:

- Do not discharge the battery below a 15% charge level (State of Charge, SoC) during operation.
- Recharge the battery immediately when the remaining capacity reaches 15%.
- Storage preparation: Before storing the device for an extended period of non-use, charge the battery to between 40% and 60% SoC. Never store a completely discharged battery, as natural self-discharge will cause permanent damage to the battery cells.

Conformity	UN38.3
Type	Lithium-ion Polymer (LiPo)
Nominal capacity	4900 mAh
Nominal energy	55.86 Wh
Nominal rated voltage	11.4 V
Charge voltage	13.05 V
Lithium content	3.72 g / 0.0082 lb
Number of cells	3

5.1.5 BIOS support battery

Conformity	UN38.3
Type	Lithium Metal
Rated capacity	235 mAh
Nominal rated voltage	3.0 V
Lithium content	0.07 g / 0.00015 lb
Number of cells	1

5.2 Product markings

Symbol	Description
	Please read the user manual before starting up the product.
SN: 49xxxxx	Serial number
F 00K xxxxxxx	Order number
x-xx V ⎓	Operating voltage range DC
xxx A	Max. current consumption
	**China RoHS** With the China RoHS identification attached to the product or its packaging, ETAS confirms that the product meets the guidelines of the “China RoHS” (Management Methods for Controlling Pollution Caused by Electronic Information Products Regulation) applicable in the People's Republic of China.
	Label position indicates NFC active area.

Symbol	Description
CE	**CE conformity** With the CE mark attached to the product or its packaging, ETAS confirms that the product corresponds to the applicable, product-specific Directives of the European Union. The EU Declaration of Conformity for the product is available upon request. **European Union** The EU Directive 2011/65/EU limits the use of certain dangerous materials for electric and electronic devices (RoHS conformity). This product does not contain any of the prohibited substances listed in EU Directive 2011/65/EU and does not exceed the maximum authorized concentrations specified. There are currently no equivalent alternative substances for individual electronic components used in our products. We are therefore making use of exemptions 7.a-I, 7.c-I and 6.c (for accessory cables) in Annex III of this Directive. ETAS confirms that the product meets this directive applicable in the European Union.
FC 2AUQG-ES2504	**FCC conformity** With the FCC mark attached to the product and its packaging, ETAS confirms that the product has been tested in accordance with the Federal Communications commission standards.
CCC	**CCC conformity** With the CCC mark attached to the product and its packaging, ETAS confirms that the product has been tested in accordance with the China Quality Certification Centre (CQC) standards.
ANATEL 07802-26-19416	**ANATEL (Brazil) conformity** Este produto está homologado pela Anatel, de acordo com os procedimentos regulamentados para avaliação da conformidade de produtos para telecomunicações e atende aos requisitos técnicos aplicados.

Symbol	Description
CMIT ID: 26J99H9Y7957	CMIIT ID certification for Radio Frequency (RF) devices in China.
	**TÜV SÜD** With the cTÜVus mark attached to the product and its packaging, ETAS confirms that the product has been tested in accordance with UL 62368-1 & CSA C2.2 No 62361-1:19 3rd Edition.
	**Product return and recycling** The European Union (EU) released the Directive for Waste Electrical and Electronic Equipment - WEEE to ensure the setup of systems for collecting, treating and recycling electronic waste in all countries of the EU. This ensures that the devices are recycled in a resource-friendly way that does not represent any risk to personal health and the environment. The WEEE symbol on the product or its packaging identifies that the product may not be disposed of together with the remaining trash. The user is obligated to separately collect old devices and provide them to the WEEE return system for recycling. The WEEE Directive applies to all ETAS devices, but not to external cables or batteries. Lithium batteries must be disposed of in accordance with the EU Battery Directive (2006/66/EC). Additional information about the recycling program of ETAS GmbH is available from www.etas.com/hotlines.

Symbol	Description
	**Taiwan Recycling Mark** With the Taiwan Recycling Mark attached to the product or its packaging, ETAS indicates that the product is subject to the applicable recycling and waste disposal requirements in Taiwan.
	**Recycling symbol** The recycling symbol attached to the product or its packaging indicates that the product or packaging material is recyclable. The product and its packaging should be disposed of and recycled in accordance with the applicable local regulations.

5.3 Connectors

> **Note**
>
> Connections shown are the face view of the DLC connector on the ES2504.



Pin	Signal	Pin	Signal
1	CAN A H (6)	11	GND (4)
2	CAN A L (14)	12	GND (4)
3	CAN B H (3)	13	SIG GND (5)
4	CAN B L (11)	14	VBATT (16)
5	CAN C H (12)	15	VBATT (16)
6	CAN C L (13)	16	VBATT (16)
7	CAN D H (1)	17	IDENT
8	CAN D L (9)	18	IDENT
9	OBD 7	19	GND (4)
10	DoIP ACT (8)	20	n/c

6 Maintenance

6.1 Cleaning

- Only clean the ES2504 when it is de-energized.
- Only clean the ES2504 with protective flaps closed.
- Do not use compressed air to clean the fans.
- Do not use cleaning agents that could harm the ES2504.
- Do not apply cleaning agents directly onto the ES2504.
- Use a dry or slightly dampened, soft, lint-free cloth.
- Make sure that no moisture enters the ES2504.

6.2 Firmware update

The ES2504 firmware (BIOS, EC, and VCI) can be updated using the corresponding ETAS update utilities. Please contact ETAS for details. Further contact information is available in the chapter "Contact information" on page 43

6.3 Repair service

If repairs are required, send an e-mail to service.support.manchester@etas.com and request a return merchandise authorization (RMA).

7 Packaging and shipping

7.1 Packaging instructions

Unpack the ES2504 carefully. Please dispose of the packaging responsibly according to local environmental regulations, or retain it for future return shipments (such as for service or repair).

7.2 Shipping instructions



WARNING

Fire Hazard

The ES2504 contains a lithium battery. Damaged lithium batteries may cause heat, fire or short circuits.

If the battery is damaged, shut the product down immediately and contact ETAS Support: www.etas.com/hotlines

Damaged or defective lithium batteries must under no circumstances be shipped by regular parcel service or air freight.

Note the additional requirements for shipment and packaging.

The shipment and packaging requirements according to UN3480 apply exclusively to shipment of the battery.

The shipment and packaging requirements according to UN3481 apply exclusively to shipment of the product including the battery.

The shipment and packaging requirements that apply to this product, including the testing summary for the battery, can be found in the product-specific area on the ETAS website: www.etas.com/ww/en/guidelines-for-shipping-lithium-batteries.

7.3 Return information and form

You can find the return form and information about this process on the ETAS website: www.etas.com/hw_return_form.

7 Accessories and order information

7.4 Main product

Order name	Short name	Order number
ES2504.1 INTEGRATED DIAGNOSTIC TESTER (WiFi only, CN)	ES2504.1	F 00K 117 925
ES2504.2 INTEGRATED DIAGNOSTIC TESTER (WiFi only)	ES2504.2	F 00K 117 926
ES2504.3 INTEGRATED DIAGNOSTIC TESTER (WiFi + 5G)	ES2504.3	F 00K 118 991

7.5 OBD cables

Order name	Short name	Order number
VCATS ES2504 DLC CABLE 1.5M INT DLC	CBO110.1-1M5	F 00K 118 101
VCATS ES2504 DLC CABLE 1.5M NON-INT DLC	CBO110.2-1M5	F 00K 118 121
VCATS ES2504 1.5M DLC RIGHT ANGLE INT	CBO110.3-1M5	F 00K 118 475

7.6 OBD extension cables

Order name	Short name	Order number
VCATS 2.0 m OBD Extension Diagnostic Cable	CBOX100.1-2	F 00K 116 396
VCATS 2.5 m OBD Extension Diagnostic Cable	CBOX100.1-2m5	F 00K 116 397
VCATS 3.0 m OBD Extension Diagnostic Cable	CBOX100.1-3	F 00K 116 398

Order name	Short name	Order number
VCATS 4.0 m OBD Extension Diagnostic Cable	CBOX100.1-4	F 00K 116 399
VCATS 5.0 m OBD Extension Diagnostic Cable	CBOX100.1-5	F 00K 116 400
VCATS 8.0 m OBD Extension Diagnostic Cable	CBOX100.1-8	F 00K 116 401
VCATS 10 m OBD Extension Diagnostic Cable	CBOX100.1-10	F 00K 116 402

7.7 Other

Order name	Short name	Order number
ES2503 DOCKING TYPE G PLUG	ES2503.G	F 00K 118 218
ES2503 DOCKING TYPE E/F PLUG	ES2503.E_F	F 00K 118 219
ES2503 DOCKING TYPE B PLUG	ES2503.B	F 00K 118 220
ES2503 DOCKING TYPE I PLUG	ES2503.I	F 00K 118 221
ES2503 DOCKING TYPE N PLUG	ES2503.N	F 00K 118 222
AC2504BAT01 VCATS ES2504 MAIN BATTERY	AC2504BAT01	F 00K 118 123

8 Contact information

Technical support

For details of your local sales office as well as your local technical support team and product hotlines, take a look at the ETAS website:

www.etas.com/hotlines

ETAS offers trainings for its products:

www.etas.com/academy

ETAS headquarters

ETAS GmbH		
Borsigstraße 24	Phone:	+49 711 3423-0
70469 Stuttgart	Fax:	+49 711 3423-2106
Germany	Internet:	www.etas.com

9 Legal information

9.1 Use of open-source software

The product might use open-source software (OSS). This software is installed on the product at shipment and does not need to be installed or updated by the user. If OSS is used, see the accompanying "OSS Attributions Document" for more information.

9.2 Certification and conformity

9.2.1 Declarable substances

European Union

Some products from ETAS GmbH (e.g. modules, boards, cables) use components with materials that are subject to declaration in accordance with the REACH regulation (EC) no.1907/2006. The REACH Declaration is available online at www.etas.com/reach and is continuously updated.

9.3 Standards and norms

The ES2504 complies with the following standards and norms:

Standards	Title	Further information
IEC 62368-1:2020 (IEC 62368-1:2018), EN IEC 62368-1:2024 + A11:2024	Audio/video, information and communication technology equipment – Part 1: Safety requirements	cTUV-SÜDus to UL 62368-1 in USA/CA
EN 55032:2015 + A11:2020	Electromagnetic compatibility of multimedia equipment - Emission requirements (CISPR 32:2015 + COR1:2016 + A1:2019)	Class A
EN 55035:2017 + A11:2020	Electromagnetic compatibility of multimedia equipment - Immunity requirements	

Standards	Title	Further information
EN 301 489-1 V2.2.3	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services - Part 1: Common technical requirements	
EN 301 489-17 V3.2.4	ElectroMagnetic Compatibility (EMC)standard for radio equipment and services; - Part 17: Specific conditions for Broadband Data Transmission Systems	
ETSI EN 300 328 V2.2.2	Wide-band transmission systems - Data transmission equipment operating in the 2,4 GHz band - Harmonized standard for access to radio spectrum	
ETSI EN 301 893 V2.2.1	5 GHz WAS/RLAN - Harmonized standard for access to radio spectrum	
ETSI 300 440 V2.2.1	Short Range Devices (SRD) - Radio equipment to be used in the 1 GHz to 40 GHz frequency range	
FCC CFR Title 47, Part 15, Subpart B	Radio Frequency Devices	
ANSI C63.4	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	

ES2504.3 is configured for UK Ofcom-approved cellular bands by factory default. Any unauthorized modification of the radio frequency configuration shall be undertaken user's own risk, and the manufacturer shall not be liable for non-compliances caused by user-initiated configuration change.

9.3.1 EMC Class A

Republic of Korea

이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.
This equipment is in Class A suitable for professional use and is for use in electromagnetic environments outside of the home.

USA

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Responsible Party – U.S. Contact Information
ETAS Inc.
15800 N. Hagerty Road
Plymouth, MI
48170
www.etas.com/US