

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

Notice

While reasonable efforts have been made to assure the accuracy of this document, Telit assumes no liability resulting from any inaccuracies or omissions in this document, or from use of the information obtained herein. The information in this document has been carefully checked and is believed to be entirely reliable. However, no responsibility is assumed for inaccuracies or omissions. Telit reserves the right to make changes to any products described herein and reserves the right to revise this document and to make changes from time to time in content hereof with no obligation to notify any person of revisions or changes. Telit does not assume any liability arising out of the application or use of any product, software, or circuit described herein; neither does it convey license under its patent rights or the rights of others.

It is possible that this publication may contain references to, or information about Telit products (machines and programs), programming, or services that are not announced in your country. Such references or information must not be construed to mean that Telit intends to announce such Telit products, programming, or services in your country.

Copyrights

This instruction manual and the Telit products described in this instruction manual may be, include or describe copyrighted Telit material, such as computer programs stored in semiconductor memories or other media. Laws in the Italy and other countries preserve for Telit and its licensors certain exclusive rights for copyrighted material, including the exclusive right to copy, reproduce in any form, distribute and make derivative works of the copyrighted material. Accordingly, any copyrighted material of Telit and its licensors contained herein or in the Telit products described in this instruction manual may not be copied, reproduced, distributed, merged or modified in any manner without the express written permission of Telit. Furthermore, the purchase of Telit products shall not be deemed to grant either directly or by implication, 3rd parties, or otherwise, any license under the copyrights, patents or patent applications of Telit, as arises by operation of law in the sale of a product.

Computer Software Copyrights

The Telit and 3rd Party supplied Software (SW) products described in this instruction manual may include copyrighted Telit and other 3rd Party supplied computer programs stored in semiconductor memories or other media. Laws in the Italy and other countries preserve for Telit and other 3rd Party supplied SW certain exclusive rights for copyrighted computer programs, including the exclusive right to copy or reproduce in any form the copyrighted computer program. Accordingly, any copyrighted Telit or other 3rd Party supplied SW computer programs contained in the Telit products described in this instruction manual may not be copied (reverse engineered) or reproduced in any manner without the express written permission of Telit or the 3rd Party SW supplier. Furthermore, the purchase of Telit products shall not be deemed to grant either directly or by implication, 3rd parties, or otherwise, any license under the copyrights, patents or patent applications of Telit or other 3rd Party supplied SW, except for the normal non-exclusive, royalty free license to use that arises by operation of law in the sale of a product.



Contents

1. Introduction	7
1.1. Scope	7
1.2. Contact Information, Support	7
1.3. Text Conventions	7
1.4. Related Documents	8
2. The UE910-EU V2 AUTO.....	9
2.1. Product Overview	9
2.2. Target Market	10
2.3. Product Features	10
3. Product Description.....	13
3.1. Size and 2D mechanical drawing	13
3.2. Weight	13
3.3. Operating Frequency	14
3.4. Transmitter output power	14
3.5. Antenna	14
3.6. Supply voltage	14
3.7. Power consumption	15
3.8. The user interface	15
3.9. Inputs and Outputs	15
3.9.1. General Purpose I/Os	15
3.9.2. Power on monitor (PWR_MON)	15
3.9.3. Power on/off control (ON_OFF).....	15
3.9.4. Auxiliary power output for accessory (VAUX).....	15
3.9.5. SIM Reader	15
3.9.6. Serial Port.....	15
3.9.7. USB port	15
3.10. Converters.....	16
3.10.1. ADC Converter	16
3.11. Logic level specifications	16
3.12. Audio	16
3.12.1. Analog.....	16
3.12.2. Digital	16



- 3.13. Other features 16
 - 3.13.1. Speech CODEC..... 16
 - 3.13.2. SMS..... 16
 - 3.13.3. Phonebook..... 17
 - 3.13.4. Call status indication..... 17
 - 3.13.5. eCall Compliance..... 17
- 3.14. Environmental requirements..... 17
 - 3.14.1. RoHS compliance 17
- 3.15. Mounting the UE910-EU V2 AUTO on your Board 17
- 3.16. Packing system 18
- 4. Evaluation Kit..... 19**
 - 4.1. AT Commands 19
 - 4.2. Safety Recommendations 20
- 5. List of acronyms 21**
- 6. Document History..... 23**



1. Introduction

1.1. Scope

Scope of this document is to give an overview of the Telit UE910-EU V2 AUTO: the automotive grade variant of the UE910-V2 series which can support GSM/GPRS/UMTS/HSDPA technologies.

1.2. Contact Information, Support

For general contact, technical support, to report documentation errors and to order manuals, contact Telit Technical Support Center (TTSC) at:

TS-EMEA@telit.com
TS-NORTHAMERICA@telit.com
TS-LATINAMERICA@telit.com
TS-APAC@telit.com

Alternatively, use:

<http://www.telit.com/en/products/technical-support-center/contact.php>

For detailed information about where you can buy the Telit modules or for recommendations on accessories and components visit:

<http://www.telit.com>

To register for product news and announcements or for product questions contact Telit Technical Support Center (TTSC).

Our aim is to make this guide as helpful as possible. Keep us informed of your comments and suggestions for improvements.

Telit appreciates feedback from the users of our information.

1.3. Text Conventions



Danger – This information MUST be followed or catastrophic equipment failure or bodily injury may occur.



Caution or Warning – Alerts the user to important points about integrating the module, if these points are not followed, the module and end user equipment may fail or malfunction.





Tip or Information – Provides advice and suggestions that may be useful when integrating the module.

All dates are in ISO 8601 format, i.e. YYYY-MM-DD.

1.4. Related Documents

- UE910-EU V2 AUTO Hardware User Guide, 1vv0301072
- AT Command User Guide, 80419ST10124A



2. The UE910-EU V2 AUTO

2.1. Product Overview

The UE910-EU V2 AUTO is a new and hardened variant of the dual-band UE910 V2 series designed for use in the most demanding automotive applications, delivering a downlink speed of up to 3.6 Mbps and uplink of up to 384 Kbps. Both products are based on market's latest release chipsets and slated for long-term availability protecting OEM's and Integrator's design investments.

The products include a 3GPP TS26.267 compliant in-band modem according to the eCall EU directive, leveraging Telit's expertise in audio processing and tuning, accessible via a wide set of dedicated AT commands. The modules are developed and manufactured under ISO TS16949 quality specifications meeting or exceeding supply chain requirements from OEM automotive.

The UE910-EU V2 AUTO is designed specifically for European automotive and telematics applications leveraging dual-band UMTS/HSDPA 900/2100MHz and 900/1800MHz GSM/GPRS/EDGE. It is voice-capable, also supporting both analog and digital interfaces. The module is equipped with a high-speed USB 2.0 interface, UART port, ten 1.8V I/O ports and an ADC converter. Upcoming support for Java J2ME makes the UE910-EU V2 AUTO ideal for projects requiring an embedded application framework.



NOTE:

Some of the performances of the Telit modules depend on S/W version installed on the module itself. The Telit modules S/W group is continuously working in order to add new features and improve the overall performances. The Telit modules are easily upgraded by the developer using the Telit Flash Programmer.



NOTE:

In order to meet the competitive OEM and vertical market stringent requirements, Telit supports its customers with a dedicated Support Policy with:

- Telit Evaluation Kit EVK2 to help you to develop your application;
 - A website with all updated information available;
 - An high level specialist technical support to assist you in your development;
-



2.2. Target Market

The UE910-EU V2 AUTO is designed and developed for the usage in most demanding automotive applications.

The ideal platform for all embedded mobile data applications in the line-fitted automotive, telematics, fleet and logistics management segments.

2.3. Product Features

- Dual-band EGSM 900 / 1800 MHz class 12
- Dual-band UMTS/HSDPA 900 / 2100 MHz
- 3GPP protocol stack release 5 compliant
- Supply voltage range: 3.4 – 4.2 V DC (3.8 V DC nominal)
- Output power
 - Class 4 (2 W, 33 dBm) @ GSM 850 / 900
 - Class 1 (1 W, 30 dBm) @ GSM 1800 / 1900
 - Class E2 (0.5 W, 27 dBm) @ EDGE 850 / 900
 - Class E2 (0.4 W, 26 dBm) @ EDGE 1800 / 1900
 - Class 3 (0.25 W, 24 dBm) @ UMTS
- Control via AT commands according to 3GPP 27.005, 27.007 and Telit custom AT commands
- SIM Application Toolkit 3GPP TS 51.014
- SIM Access Profile
- IP stack with TCP and UDP protocol
- E-Call compliant
- Dimensions: 28.2 x 28.2 x 2.2 mm
- Weight: 6 grams
- Extended temperature range
 - 40°C to +85°C (Operating range)
 - 40°C to +90°C (Storage temperature)
- RoHS and REACH compliant
- Manufactured under TS16949 Quality specifications

Interfaces

- 10 I/O ports
- Digital voice support



- Analog voice support
- 2 ADC
- 1 DAC
- USB 2.0 High Speed
- 2 UART

Data transmission

- HSDPA:
 - DL up to 3.6Mbps
 - UL up to 384 kbps
- WCDMA: up to 384kbps downlink/uplink
- EDGE: DL up to 236.8 kbps, UL up to 236.8 kbps
- GPRS: DL up to 85,6 kbps, UL up to 85.6kbps
- Asynchronous non-transparent CSD up to 9.6kbps

Audio

- Telephony
- Half rate, full rate, enhanced full rate and adaptive multi rate voice codecs (HR, FR, EFR, AMR)
- Superior echo cancellation & noise reduction
- DTMF

SMS

- Point-to-point mobile originated and mobile terminated SMS
- Concatenated SMS supported
- SMS cell broadcast
- Text and PDU mode
- SMS over GPRS

GPRS data

- GPRS class 12
- Mobile station class B
- Coding scheme 1 to 4
- PBCCH support
- GERAN Feature Package 1 support (NACC, Extended TBF)



GSM Supplementary Services

- Call forwarding
- Call barring
- Call waiting & call hold
- Advice of charge
- Calling line identification presentation (CLIP)
- Calling line identification restriction (CLIR)
- Unstructured supplementary services mobile originated data (USSD)
- Closed user group

Approvals

- Fully type approved conforming with R&TTE directive
- CE, GCF, FCC, PTCRB, IC

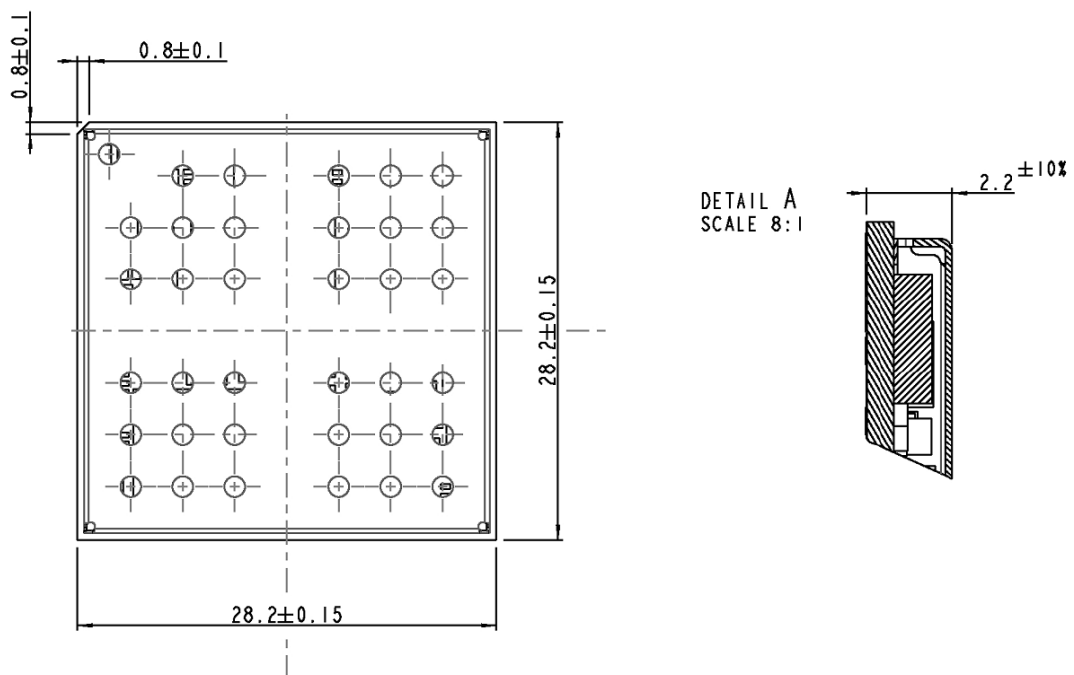


3. Product Description

3.1. Size and 2D mechanical drawing

The UE910-EU V2 AUTO overall dimensions are:

- Length: 28.2 mm
- Width: 28.2 mm
- Thickness: 2.2 mm



3.2. Weight

The weight of the UE910-EU V2 AUTO is about 5 grams.



3.13.3. Phonebook

This function allows the storing of the telephone numbers in SIM memory. The capability depends on SIM version and its embedded memory.

3.13.4. Call status indication

The call status indication is supported.

3.13.5. eCall Compliance

eCall is a project of the European Commission intended to bring rapid assistance to motorists involved in a collision anywhere in the European Union. The projects aims to employ a hardware black box installed in vehicles that will wirelessly send vehicle location information, time stamp, number of passengers, Vehicle Identification Number (VIN), and other relevant accident information to local emergency agencies eCall builds on emergency voice call (E112).

The main actors are the IVS (In-Vehicle System) and the PSAP (Public Safety Answering Point). When a collision happens the IVS sends to PSAP the MSD (Minimum Set of Data) via the speech channel of cellular and PSTN networks.

eCall provides reliable full-duplex data communications between IVS and PSAP in addition to emergency voice call, and can be initiated either automatically or manually. The eCall Inband Modem uses the same voice channel as used for the emergency voice call. eCall allows reliable transmission of MSD alternating with a speech conversation through the existing voice communication paths in cellular mobile phone systems.

Telit, understanding the importance of the eCall standard, developed its own eCall in band modem solution. The extra-rugged UE910 AUTO V2 is able to act as IVS in-band modem. IVS in-band modem functionality is completely transparent because user has only to enable it and manage unsolicited messages coming for AT commands interface.

3.14. Environmental requirements

Environmental tests according to ISO 16750-1/-3/-4

Manufactured according to ISO TS 16949

3.14.1. RoHS compliance

As a part of Telit's corporate policy of environmental protection, the UE910-EU V2 AUTO product comply to the RoHS (Restriction of Hazardous Substances) directive of the European Union (EU Directive 2002/95/EG).

3.15. Mounting the UE910-EU V2 AUTO on your Board

The Telit UE910-EU V2 AUTO module has been designed in order to be compliant with a standard lead-free SMT process. For detailed information about PCB pad design and conditions to use in SMT process please check with the UE910-EU V2 AUTO Hardware User Guide.



3.16. Packing system

According to SMT process, for picking & placing movement requirements, UE910-EU V2 AUTO family is packaged on trays.

The level of moisture sensibility of UE910-EU V2 AUTO family is “3”, according with standard IPC/JEDEC J-STD-020, take care of all the relative requirements for using this kind of components. Special care for handling is highly required.



PLMN	Public Land Mobile Network
PUCT	Price per Unit Currency Table
PUK	PIN Unblocking Code
RACH	Random Access Channel
RLP	Radio Link Protocol
RMS	Root Mean Square
RTS	Ready To Send
RI	Ring Indicator
SCA	Service Center Address
SIM	Subscriber Identity Module
SMD	Surface Mounted Device
SMS	Short Message Service
SMSC	Short Message Service Center
SS	Supplementary Service
TIA	Telecommunications Industry Association
UDUB	User Determined User Busy
USSD	Unstructured Supplementary Service Data



6. Document History

Revision	Date	Changes
0	2013-11-11	First issue

