

WinCE6, WEC7 USB Drivers - User Guide

1VV0301258 Rev.1 – 2016-07-07



APPLICABILITY TABLE

PRODUCT
CE910
DE910 (PID: 0x1010)
GE910
HE910 (PID: 0x0021)
HE920 (PID: 0x1010)
LE910 (PID: 0x1201, 0x1203)
LE910 V2 (PID: 0x0036)
LE920 (PID: 0x1201, 0x1203)
UE910 (PID: 0x0021)
UL865 (PID: 0x0021)

SW Version
U1.00.07 (Win CE 6)
U5.00.02 (Win CE 6)
U9.00.01 (WEC 7)
UA.00.02 (WEC 7)
UM.00.00 (Win CE 6)
UM.01.00 (WEC 7)



*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, estoppel, 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, estoppel, 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.



Usage and Disclosure Restrictions

License Agreements

The software described in this document is the property of Telit and its licensors. It is furnished by express license agreement only and may be used only in accordance with the terms of such an agreement.

Copyrighted Materials

Software and documentation are copyrighted materials. Making unauthorized copies is prohibited by law. No part of the software or documentation may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language or computer language, in any form or by any means, without prior written permission of Telit

High Risk Materials

Components, units, or third-party products used in the product described herein are NOT fault-tolerant and are NOT designed, manufactured, or intended for use as on-line control equipment in the following hazardous environments requiring fail-safe controls: the operation of Nuclear Facilities, Aircraft Navigation or Aircraft Communication Systems, Air Traffic Control, Life Support, or Weapons Systems (High Risk Activities"). Telit and its supplier(s) specifically disclaim any expressed or implied warranty of fitness for such High Risk Activities.

Trademarks

TELIT and the Stylized T Logo are registered in Trademark Office. All other product or service names are the property of their respective owners.

Third Party Rights

The software may include Third Party Right software. In this case you agree to comply with all terms and conditions imposed on you in respect of such separate software. In addition to Third Party Terms, the disclaimer of warranty and limitation of liability provisions in this License shall apply to the Third Party Right software.

TELIT HEREBY DISCLAIMS ANY AND ALL WARRANTIES EXPRESS OR IMPLIED FROM ANY THIRD PARTIES REGARDING ANY SEPARATE FILES, ANY THIRD PARTY MATERIALS INCLUDED IN THE SOFTWARE, ANY THIRD PARTY MATERIALS FROM WHICH THE SOFTWARE IS DERIVED (COLLECTIVELY "OTHER CODE"), AND THE USE OF ANY OR ALL THE OTHER CODE IN CONNECTION WITH THE SOFTWARE, INCLUDING (WITHOUT LIMITATION) ANY WARRANTIES OF SATISFACTORY QUALITY OR FITNESS FOR A PARTICULAR PURPOSE.

NO THIRD PARTY LICENSORS OF OTHER CODE SHALL HAVE ANY LIABILITY FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING WITHOUT LIMITATION LOST PROFITS), HOWEVER CAUSED AND WHETHER MADE UNDER CONTRACT, TORT OR OTHER LEGAL THEORY, ARISING IN ANY WAY OUT OF THE USE OR DISTRIBUTION OF THE OTHER CODE OR THE EXERCISE OF ANY RIGHTS GRANTED UNDER EITHER OR BOTH THIS LICENSE AND THE LEGAL TERMS APPLICABLE TO ANY SEPARATE FILES, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Copyright © Telit Communications S.p.A. 2016.



Contents

1. Introduction.....	6
1.1. Scope.....	6
1.2. Audience	6
1.3. Contact Information, Support	6
1.4. Document Organization	7
1.5. Text Conventions	7
1.6. Related Documents.....	7
2. Operating System Setup	8
2.1. Summary.....	8
2.2. Integrating the Serial Port Driver	8
2.2.1. Modems listed in group 1 (CDCACM.dll).....	8
2.2.2. Modems listed in group 2 (CDCDriver.dll)	9
2.2.3. Modifying the registry keys.....	9
2.3. Integrating the RNDIS Driver.....	9
2.4. Integrating Flashing Driver CDCACM_Flash.....	10
3. Modem Setup	11
3.1. Setting the USB composition.....	11
4. Modem Usage	12
4.1. Using the serial port	12
4.1.1. Data Connection Known Limitations	12
4.2. Using the RNDIS adapter.....	12
5. Document History.....	13



1. Introduction

1.1. Scope

Scope of this document is to give an overview of the USB drivers to be used in Windows CE 6 and Windows Embedded Compact 7 for Telit modems.

1.2. Audience

This document targets software developers who are integrating Telit modems listed in the Applicability Table in their Windows CE 6 or Windows Embedded Compact 7 environment.

1.3. 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.



1.4. Document Organization

This document contains the following chapters:

[“Chapter 1: “Introduction”](#) provides a scope for this document, target audience, contact and support information, and text conventions.

[“Chapter 2: “Operating System Setup”](#) describes how to setup the operating system for using Telit modems listed in the Applicability Table.

[“Chapter 3: “Modem Setup”](#) describes how to setup the modem for Windows CE usage.

[“Chapter 4: “Modem Usage”](#) provides some hints about how Telit modems listed in the Applicability Table can be used in Windows CE.

1.5. 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.

1.6. Related Documents

- AT Commands Reference Guide of Telit modems listed in the Applicability Table



2. Operating System Setup

2.1. Summary

All Telit modems listed in the Applicability Table present serial port devices (following the CDC-ACM standard, or one of its derivation).

Telit provides a binary driver (dll) to enable the creation of the operating system COM devices that can be used for communicating with the modem (e.g. AT commands sending, data connection).



Telit provides binaries for ARMV4I architecture (Windows CE 6) and ARMV7 (Windows Embedded Compact 7). If the driver is needed for different architectures, Telit can provide the source code under an NDA.

Telit modems listed in the Applicability Table can be divided into two groups. They should use a different .dll according to the operating system version, as explained in the following table:

Group	Modems	Driver Version	Driver Name
1	GE/HE/UE910, UL865, LE910 V2	U5.00.02 (WinCE 6) UA.00.02 (WEC 7)	CDCACM.dll
2	CE/DE/LE910, HE920	U1.00.07 (WinCE 6) U9.00.01 (WEC 7)	CDCDriver.dll

2.2. Integrating the Serial Port Driver

For proper working, the driver dll and its related registry keys should be integrated into Win CE 6/WEC 7 OS image using the Platform Builder.



Please refer to Microsoft Platform Builder documentation for learning how to add the dll and the registry keys file to the OS image.

For the registry key file to be integrated, please refer to the following paragraphs according to the modem group.

2.2.1. Modems listed in group 1 (CDCACM.dll)

Please refer to the table below for registry keys file and ports arrangement.



Modem	Registry keys file	Port arrangement
GE910	CDCACM_GE910.reg	COM6 (AT), COM7
HE/UE910, UL865 (PID: 0x0021)	CDCACM_xE910_UL865.reg	COM6 (AT), COM7, COM8, COM9 (AT)
LE910 V2 (PID: 0x0036)	CDCACM_LE910_V2_PID36.reg	COM6 (AT), COM7, COM8, COM9 (AT)

2.2.2. Modems listed in group 2 (CDCDriver.dll)

Please refer to the table below for registry keys file and ports arrangement.

Modem	Registry keys file	Port arrangement
CE910	CDCDriver_CE910.reg	COM6, COM7 (AT)
DE910, HE920 (PID: 0x1010)	CDCDriver_DE910_HE920.reg	COM6, COM7, COM8 (AT), COM9 (AT)
LE910/920 (PID: 0x1201)	CDCDriver_LE9x0_PID1201.reg	COM6, COM7, COM8 (AT), COM9 (AT)
LE910/920 (PID: 0x1203)	CDCDriver_LE9x0_PID1203.reg	COM6, COM7, COM8 (AT), COM9 (AT)

2.2.3. Modifying the registry keys

If needed, the following registry keys could be changed:

"Index"

to change COM port numbering.

"Prefix"

to change the port name prefix. The available values are "COM" or "TLT"

2.3. Integrating the RNDIS Driver

In addition to the serial devices, LE910/920 with PID 0x1203 present also a network adapter following Microsoft RNDIS protocol. This network adapter can be used for data connection.

For using the RNDIS adapter, the catalog element "USB RNDIS Class Driver" should be added to the OS image with also the following registry key:



```
[HKEY_LOCAL_MACHINE\Drivers\USB\LoadClients\7111_4611\Default\Default\USB8023]
"DLL"="USB8023.DLL"
```

2.4. Integrating Flashing Driver CDCACM_Flash

Modem listed in the table below need a special flashing driver for updating the modem firmware (using xfp application).

Modems	Driver Version	Driver Name
HE/UE910, UL865, LE910 V2	UM.00.01 (WinCE 6) UM.01.01 (WEC 7)	CDCACM_Flash.dll

The integration procedure is the same described in paragraph 2.2.

Registry keys are in CDCACM_Flash.reg file. By default COM4 is created for the flashing device, but it can be changed according to the instructions in paragraph 2.2.3.



3. Modem Setup

3.1. Setting the USB composition

For changing the modem USB composition when needed, please refer to the proper AT Commands User Guide.



4.1. Using the serial port

They can be used from the application layer using Microsoft file operations API (e.g. [CreateFile](#), [ReadFile](#)).



RASEntry and RASDial source code is available among the net samples provided by Microsoft with the Platform Builder.

In order to avoid this limitation, add the following registry key in the OS image:

4.2. Using the RNDIS adapter

For activating the data connection, send the following AT command:

where <context number> is a previously configured context (with AT+CGDCONT).



5. Document History

Revision	Date	Changes
0	2016-02-05	First issue
1	2016-07-07	Added CDCACM_Flash driver section

