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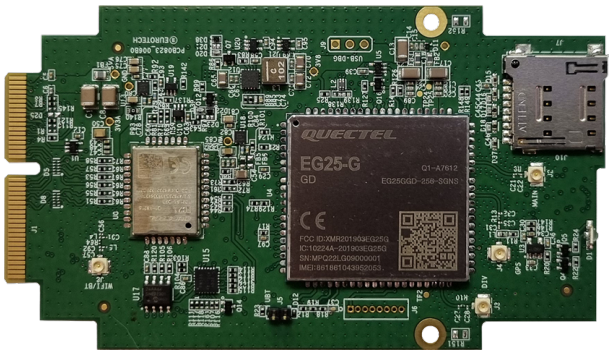

ReliaCELL 10-32

Integrated radio module
4G LTE Cat 4 Global, Wi-Fi/BT and GNSS

EN

Hardware Manual

Original instructions

Document code: RECELL-10-32-HWM-EN-1-3
Document revision: 1-3 (2025.02.13)

FOR SAFE AND PROPER USE,
FOLLOW THESE INSTRUCTIONS.
KEEP THEM FOR FUTURE REFERENCE.

Intended audience of this document

This document is intended for **system integrators**. System integrator is a term applied to skilled persons who are specialized in linking together, physically or functionally, different computing systems and software applications to operate as a coordinated whole in compliance with the applicable regulations.

Skilled person is a term applied to persons who have training or experience in the equipment technology, particularly in knowing the various energies and energy magnitudes used in the equipment. Skilled persons are expected to use their training and experience to recognize energy sources capable of causing pain or injury and to take action for protection from injury from those energies. Skilled persons should also be protected against unintentional contact or exposure to energy sources capable of causing injury.

Manufacturer information

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Trademarks

Revision history

Revision	Description	Date of Issue
1-0	First release	2024.09.19
1-1	Updated section 5.4.1 "FCC marking"	2025.01.16
1-2	Updated product label information	2025.02.10
1-3	Updated sections: • 4.3 "Product label" • 5.5 "ISED Canada compliance" • 7.3 "Antennas list/Liste des antennes"	2025.02.13

CONTENTS

1 SAFETY INSTRUCTIONS

This chapter gives the following information:

1.1 Important information

For safe and proper use, obey these instructions. Keep them for future reference.

Failure to obey these instructions, violates the standards of safety, design, manufacture, and intended use of the product.

Eurotech assume no liability for damages caused by failure to obey these instructions.

If you have questions about these instructions, refer to: https://www.eurotech.com/support.

Additional safety-related information is given in the following sections.

1.2 Explanation of messages

This Hardware Manual uses these messages:

DANGER

Indicates a hazardous situation that, if not avoided, will result in death or serious injury. Indicates how to avoid the hazardous situation.

WARNING

Indicates a hazardous situation that, if not avoided, could result in death or serious injury. Indicates how to avoid the hazardous situation.

CAUTION

Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury. Indicates how to avoid the hazardous situation.

NOTICE

Used to address practices not related to physical injury.

1.3 Wireless safety instructions

CAUTION

Risk of radio emission exposure from high-gain antennas.

Use only the antennas specified in "Antennas list/Liste des antennes" on page 31. Otherwise, the product will no longer be compliant with the intended use.

Install the product's antennas properly. Refer to "Installing the product's antennas properly" below.

1.3.1 Installing the product's antennas properly

To install the product's antennas properly, complete this procedure:

1. **Make sure that the antennas are positioned at least 20 cm away from any persons**
2. Make sure that the equipment (product with antennas installed) does not cause interference with other electronic devices.

If compliance with these instructions is not possible, make sure that the equipment is evaluated for compliance with Specific Absorption Rate (SAR) regulations.

1.4 How to prevent damaging electrostatic-sensitive devices

NOTICE

HOW TO PREVENT DAMAGING AN ELECTROSTATIC-SENSITIVE DEVICE

The following symbol is applied on electrostatic-sensitive devices:

To prevent damaging an electrostatic-sensitive device:

1. **Handle the electrostatic-sensitive devices in an ESD Protected Area (EPA)**
2. **Observe the appropriate antistatic precautions. For example: use an antistatic wrist strap kept in contact with bare skin and attached to ground.**

2 CONSIGNES DE SÉCURITÉ

Ce chapitre fournit les informations suivantes:

2.1 Informations importantes

Pour une utilisation sûre et correcte, suivez ces instructions. Conservez-les pour référence ultérieure.

Le non-respect de ces instructions constitue une violation des normes de sécurité, de conception, de fabrication et d'utilisation prévue du produit.

Eurotech rejette toute responsabilité pour les dommages causés en cas de non-respect de ces instructions.

En cas de doutes sur ces instructions, consultez le site: https://www.eurotech.com/support.

Des informations supplémentaires liées à la sécurité sont fournies dans les chapitres suivants.

2.2 Explication des messages

Ce manuel utilise les messages suivants:

DANGER

Indique une situation dangereuse qui, si elle n'est pas évitée, entraînera la mort ou un préjudice grave.
Indique comment éviter la situation dangereuse.

AVERTISSEMENT

Indique une situation dangereuse qui, si elle n'est pas évitée, pourrait entraîner la mort ou un préjudice grave.
Indique comment éviter la situation dangereuse.

ATTENTION

Indique une situation dangereuse qui, si elle n'est pas évitée, pourrait entraîner un préjudice mineur ou modéré.
Indique comment éviter la situation dangereuse.

AVIS

Utilisé pour traiter les pratiques non liées à des blessures physiques.

2.3 Instructions de sécurité pour les communications sans fil

ATTENTION

Risque d'exposition aux émissions radio des antennes à haut gain.
Utilisez uniquement les antennes spécifiées dans "Antennas list/Liste des antennes" page 31. Sinon, le produit ne sera plus conforme à l'utilisation prévue.
Installez correctement les antennes du produit. Référez-vous à la section "Installation correcte des antennes du produit" ci-dessous.

2.3.1 Installation correcte des antennes du produit

Pour installer correctement les antennes du produit, suivez cette procédure:

1. **Assurez-vous que les antennes soient positionnées à au moins 20 cm de distance de toute personne**
2. Assurez-vous que l'équipement (produit avec antennes installées) ne cause pas d'interférences avec d'autres dispositifs électroniques.

Si vous ne pouvez pas respecter ces instructions, assurez-vous que l'équipement soit évalué pour être conforme aux réglementations SAR (Specific Absorption Rate ou Taux d'Absorption Spécifique).

2.4 Comment préserver les appareils sensibles aux décharges électrostatiques

AVIS

COMMENT PRÉSERVER LES APPAREILS SENSIBLES AUX DÉCHARGES ÉLECTROSTATIQUES
Le symbole suivant est appliqué sur les appareils sensibles aux décharges électrostatiques:

Pour éviter d'endommager les appareils sensibles, procéder comme suit:

1. **Manipuler les appareils sensibles aux décharges électrostatiques dans une zone protégée contre les décharges électrostatiques (EPA)**
2. **Observer les précautions antistatiques appropriées. Par exemple: utiliser un bracelet antistatique maintenu en contact avec la peau nue et attaché au sol.**

3 TECHNICAL TERMS AND GRAPHICAL SYMBOLS

This chapter gives the following information:

3.1 Technical terms (acronyms, abbreviations)

The following technical terms (acronyms, abbreviations) can be used in this manual:
Les termes techniques suivants (acronymes, abréviations) peuvent être utilisés dans ce manuel:

Term *Terme*	Meaning *Signification*
GND	Ground *Masse*
+	Positive signal; Positive signal in differential pair *Signal positif ; signal positif dans la paire différentielle*
-	Negative signal; Negative signal in differential pair *Signal négatif ; Signal négatif dans la paire différentielle*
I	The signal is an input to the product *Le signal est une entrée du produit*
O	The signal is an output from the product *Le signal est une sortie du produit*
IO	The signal may be input or output *Le signal peut être une entrée ou une sortie*
OD	The signal is an open drain *Le signal est un drain ouvert*
P	Power and Ground *Alimentation et masse*
NC	No Connection *Absence de connexion*
R **Reserved**	Use is reserved to Eurotech *L'utilisation est réservée à Eurotech*

3.2 Graphical symbols

The following graphical symbols can be used in this manual:
Les symboles graphiques suivants peuvent être utilisés dans ce manuel:

Symbol *Symbole*	Meaning *Signification*
	Direct current (DC) *Courant continu (CC)*
	Protective earth; protective ground *Mise à la terre de protection (PE)*

4 PRODUCT OVERVIEW

This chapter gives the following information:

4.1 Product description

The ReliaCELL 10-32 is a pre-certified, radio module that combines cellular, Wi-Fi, Bluetooth, and GNSS in a single unit.

Suitable for system integration, this module provides global coverage, minimizing the cost and complexity of compliance with radio regulatory and carrier certifications.

The ReliaCELL 10-32 includes several wireless technologies: 4G/LTE Cat 4 global cellular, GNSS and Wi-Fi/BT; this module also includes a Micro SIM card slot and one optional eSIM.

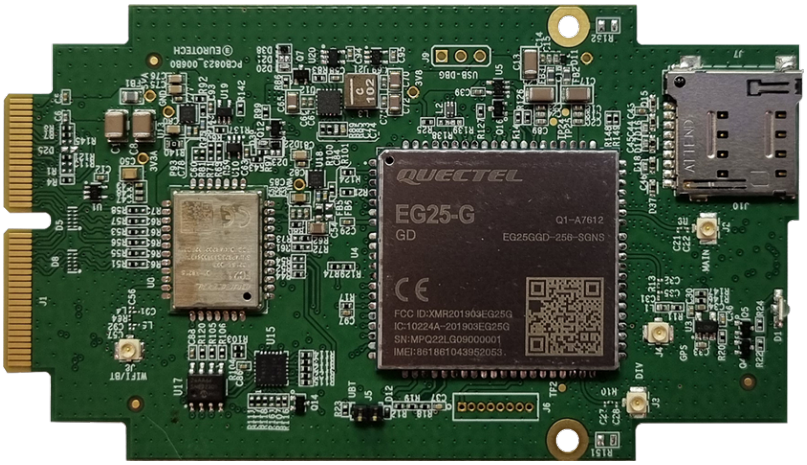


Fig. 1 - The ReliaCELL 10-32 - top view

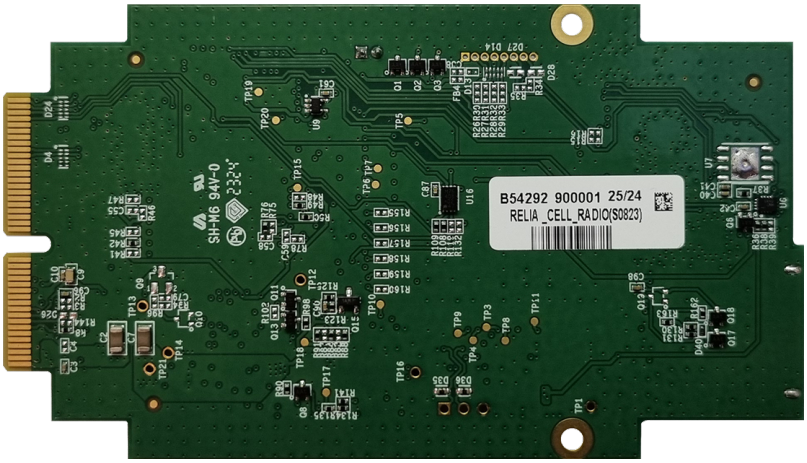


Fig. 2 - The ReliaCELL 10-32 - bottom view

4.2 Intended use and not allowed uses of the product

The ReliaCELL 10-32 is intended for professional use and must be installed by qualified personnel only.

The ReliaCELL 10-32 radio module is intended to be fitted to a PCB into a host product. Contact Eurotech Support for the Integration Manual that provides the instructions which you must obey to do this integration.

4.2.1 Deterministic output notice

NOTICE

This product is not intended to be physically or logically connected to an automation process.

4.2.2 Intended use

The ReliaCELL 10-32 is a pre-certified, radio module that combines cellular, Wi-Fi, Bluetooth, and GNSS in a single unit.

The ReliaCELL 10-32 must:

- Be used with an appropriate Host CPU
- Be used indoors or in automotive applications. Before you use the ReliaCELL 10-32 in automotive applications:
  - in the EU, switch-OFF the Wi-Fi band 5150 MHz – 5350 MHz
  - in the US and Canada, switch-OFF the Wi-Fi bands 5150 MHz – 5350 MHz and 5745 MHz – 5825 MHz

4.2.3 Not allowed uses

Do not use the ReliaCELL 10-32:

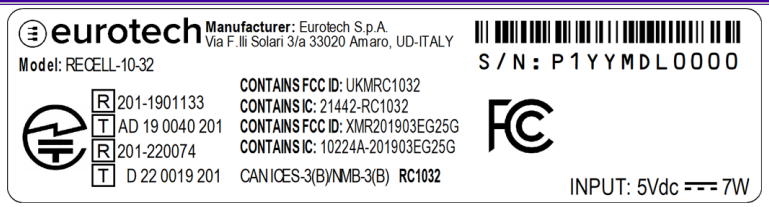
- In railway applications
- In defense applications
- Outdoors
- In safety-critical applications
- In environments with potentially explosive atmospheres
- If not installed according to the instructions and warnings contained in this document.

In automotive applications in any EU Member State, do not use the ReliaCELL 10-32 with the Wi-Fi band 5150 MHz – 5350 MHz enabled.

In automotive applications in the US and Canada, do not use the ReliaCELL 10-32 with the Wi-Fi bands 5150 MHz – 5350 MHz and 5745 MHz – 5825 MHz enabled.

4.3 Product label

The full Product identification label is as follows:

Label type and content	Full product identification label
Product identification label • Eurotech logo, • Manufacturer address, • Serial number, • Model number (example), • Regulatory marks, • Contains FCC ID: UKMRC1032, • Contains IC: 21442-RC1032, • Contains FCC ID: XMR201903EG25G, • Contains IC: 10224A-201903EG25G, • CAN ICES-3(B)/NMB-3(B), • RC1032.	

* The symbol ⎓ stands for direct current

NOTE: The dimensions of the product do not allow the full product identification label to be attached to the product. Instead, a reduced version of the label will be attached, containing only FCC and ISED data.

NOTICE

Make sure that the outside of the device in which the ReliaCELL 10-32 is installed displays a label with the following wording: Contains FCC ID: UKMRC1032, Contains IC: 21442-RC1032, Contains FCC ID: XMR201903EG25G, Contains IC: 10224A-201903EG25G, CAN ICES-3 (B)/NMB-3(B), RC1032.

4.4 Technical specifications

The ReliaCELL 10-32 has the following technical specifications:

Specifications		Description
RADIO INTERFACES	**Cellular**	4G LTE Cat 4 Global
	GNSS	GPS, GLONASS, BeiDou / Compass, Galileo, QZSS
	Wi-Fi/BT	802.11 a/b/g/n/ac (2.4, 5 GHz) / BLE5 (2.4 GHz)
	Antennas	1x Main Cellular Antenna Connector (U.FL-R-SMT) 1x Diversity Cellular Antenna Connector (U.FL-R-SMT) 1x GNSS Antenna Connector (U.FL-R-SMT) 1x Wi-Fi / BT Antenna Connector (U.FL-R-SMT)
OTHER	**SIM/eSIM**	1x microSIM / (Option: 1x eSIM)
	LEDs	Dual-color LED: • Network Registration Mode - color amber • Network Status - color green
POWER	**Input**	Nominal: 5 V DC
	Consumption	TBD
ENVIRONMENT	**Operating Temperature**	-30 to +70 °C
	Storage Temperature	-40 to +85 °C
	Humidity	5 to 95% Relative Humidity (Non-condensing) at +40 °C
CERTIFICATIONS	**Regulatory**	FCC*, ISED*, JATE*/TELEC*
	Radio	FCC*, ISED*, JATE*/TELEC*, PTCRB*
	Cellular Carriers	AT&T, Verizon§, T-Mobile§
	Environmental	RoHS3, REACH
MECHANICAL	**Dimensions**	105 x 60 mm (L x W)

* Ongoing or planned

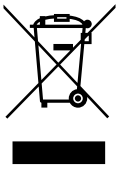
§ Contact Eurotech

5 CERTIFICATIONS

Note about the Declaration of Conformity
Upon request, Eurotech can provide the product Declaration of Conformity.
For more information, refer to: https://www.eurotech.com/support.

This chapter gives the following information:

5.1 WEEE



This symbol, placed on the product, indicates that the product at the end of its life cycle must be sent to separate collection facilities for recovery and recycling. Because of the substances present in the product, improper disposal can cause damage to human health and to the environment.

For collecting and recycling information, refer to: https://www.eurotech.com/support.

5.2 RoHS 3 compliance

The product complies with the following Directives:

- Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment
- Commission Delegated Directive (EU) 2015/863 as regards the list of restricted substances.

5.3 REACH compliance

The product is assessed to be compliant with the regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), with the exceptions allowed by the EU Technical Committee.

Eurotech has set in place a monitoring process to assess compliance to REACH regulation.
For details and more information, refer to: https://www.eurotech.com/support.

5.4 FCC compliance

5.4.1 FCC marking

The product is FCC marked and complies with the regulatory information reported in the following sections

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.

Eurotech is not responsible for the use of the product together with equipment (for example: power supplies, personal computers, etc.) that are not FCC marked and not compliant with the requirements specified in this instructions for use.

Cet appareil est certifié FCC et est conforme aux exigences réglementaires décrites dans les sections suivantes.

Cet appareil est conforme à la partie 15 des règlements de la FCC. L'utilisation est soumise aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Eurotech n'est pas responsable de l'utilisation de l'appareil avec des équipements (par exemple : alimentations, ordinateurs personnels, etc.) non certifiés FCC et qui ne sont pas conformes aux exigences spécifiées dans ces instructions d'utilisation.

Modification statement

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

Les changements ou modifications qui ne sont pas expressément approuvés par la partie responsable de la conformité peuvent annuler l'autorité de l'utilisateur à utiliser l'équipement.

5.4.2 RF radiation exposure statement

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. The antenna should be installed and operated with minimum distance of 20 cm between the radiator and your body.
This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter except in accordance with FCC multi-transmitter product procedures.

Cet appareil est conforme aux limites d'exposition aux rayonnements de la FCC pour un environnement non contrôlé. L'antenne doit être installée de façon à garder une distance minimale de 20 cm entre la source de rayonnements et votre corps.
Cet appareil et son (ses) antenne(s) ne doivent pas être co-localisés ou utilisés en conjonction avec une autre antenne ou un autre émetteur, sauf en conformité avec les procédures du produit multi-émetteur de la FCC.

5.4.3 FCC restrictions on 5 GHz Wi-Fi usage

The device is limited to indoor operation. This device complies with the Dynamic Frequency Selection (DFS) requirements of KDB 905462 D03 as a Client only without Radar Detection.

Le dispositif est limité à une utilisation en intérieur. Ce dispositif est conforme aux exigences de Sélection Dynamique de Fréquence (DFS) de la KDB 905462 D03 en tant que Client uniquement sans détection de radar.

5.4.4 FCC labeling information

For the FCC information stated on the product label, see: "Product label" on page 16.

Pour les informations de la FCC indiquées sur l'étiquette du produit, voir: "Product label" page 16.

5.5 ISED Canada compliance

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). 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 of the device.

This device has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed in the section "Antennas list/Liste des antennes" on page 31, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'utilisation est soumise aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement du dispositif.

Cet appareil a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avec les types d'antennes répertoriés dans la section "Antennas list/Liste des antennes" page 31, avec le gain maximal autorisé indiqué. Les types d'antennes ne figurant pas dans cette liste et ayant un gain supérieur au gain maximal indiqué pour tout type répertorié sont strictement interdits pour une utilisation avec cet appareil.

5.5.1 RF radiation exposure statement

The product complies with ISED radiation exposure limits set forth for an uncontrolled environment. The antenna should be installed and operated with minimum distance of 20 cm between the radiator and your body.

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter except in accordance with ISED multi-transmitter product procedures.

This device complies with Health Canada's Safety Code 6. The installer of this device should ensure that RF radiation is not emitted in excess of the Health Canada's requirement.

Cet appareil est conforme aux limites d'exposition aux rayonnements de la ISED pour un environnement non contrôlé. L'antenne doit être installé de façon à garder une distance minimale de 20 cm entre la source de rayonnements et votre corps.

Cet appareil et son (ses) antenne(s) ne doivent pas être co-localisés ou utilisés en conjonction avec une autre antenne ou un autre émetteur, sauf en conformité avec les procédures du produit multi-émetteur de la ISED.

Cet appareil est conforme avec Santé Canada Code de sécurité 6. L'installateur de cet appareil doit s'assurer que les radiations RF émises ne dépassent pas les exigences de Santé Canada.

5.5.2 ISED restrictions on 5 GHz Wi-Fi usage

The device is limited to indoor operation. This device complies with the Dynamic Frequency Selection (DFS) requirements of KDB 905462 D03 as a Client only without Radar Detection.

Le dispositif est limité à une utilisation en intérieur. Ce dispositif est conforme aux exigences de Sélection Dynamique de Fréquence (DFS) de la KDB 905462 D03 en tant que Client uniquement sans détection de radar.

5.5.3 ISED labeling information

For the ISED information stated on the product label, see: "Product label" on page 16.

Pour les informations de la ISED indiquées sur l'étiquette du produit, voir: "Product label" page 16.

5.5.4 Responsible parties: Canadian Representative contact information

The Canadian Representative has the following contact information:

Le Représentant Canadien dispose des coordonnées suivantes:

Contact Information	
Company Name	Canadian Certification Consulting, Inc.
Company Number(*)	10842A
Company Address	2210 Horizon Drive, Suite 17
City	West Kelowna
Province/State	BC
Postal Code	V1Z 3L4
Country	Canada
Contact Name	Jon Hughes
Title	President
Phone Number	1-250-575-1719
Email	info@can-cert.com

(*) Company Number is issued by Innovation, Science and Economic Development Canada (formerly Industry Canada).
Le numéro d'entreprise est délivré par Innovation, Science et Développement économique Canada (anciennement Industrie Canada).

5.6 MIC Japan

The product contains wireless equipment that comply with the construction design certification based on the Radio Law of MIC (Ministry of Internal Affairs and Communications) Japan.

A radio station license is not required to use this wireless equipment in Japan.

The product certification mark is the following:

R 201-190133
T AD 19 0040 201
R 201-220074
T D 22 0019 201

Modification statement

Eurotech does not approve any changes or modifications to the product by the user. Any changes or modifications could void the user's authority to operate the product.

6 RADIO FREQUENCY SPECIFICATIONS

This chapter gives the following information:

6.1 Wi-Fi and Bluetooth specifications

Feature	Description	
Key Features	**Region:**	Global
	Function:	Wi-Fi 2.4GHz+5GHz; BLE (Bluetooth 5.0)
	Bluetooth:	Bluetooth 5.0
	WLAN:	IEEE 802.11 a/b/g/n/ac
	Modulation Mode:	BPSK, QPSK, CCK, 16QAM, 64QAM, 256QAM
	Wi-Fi operating mode:	Access Point (max 16) / Station Mode
Data Rate (Max)	**802.11a (5 GHz)**	54 Mbps
	802.11b (2.4 GHz)	11 Mbps
	802.11g (2.4 GHz)	54 Mbps
	802.11n (2.4 / 5 GHz)	150 Mbps
	802.11ac (5GHz)	433 Mbps
	Bluetooth	24 Mbps
RF Performance 2.4 GHz		**Transmitting Power (Typ.)**
	802.11b/1 Mbps	17 dBm
	802.11b/11 Mbps	17 dBm
	802.11g/6 Mbps	16.5 dBm
	802.11g/54 Mbps	15 dBm
	802.11n/HT20MCS0	16.5 dBm
	802.11n/HT20MCS7	15 dBm
	802.11n/HT40MCS0	15 dBm
	802.11n/HT40MCS7	14 dBm
RF Performance 5 GHz		**Transmitting Power (Typ.)**
	802.11a/6 Mbps	15 dBm
	802.11a/54 Mbps	12 dBm
	802.11n/HT20MCS0	14 dBm
	802.11n/HT20MCS7	11 dBm
	802.11n/HT40MCS0	14 dBm
	802.11n/HT40MCS7	11 dBm
	802.11ac/VHT20MCS0	14 dBm
	802.11ac/VHT20MCS8	11 dBm
	802.11ac/VHT40MCS0	13 dBm
	802.11ac/VHT40MCS9	8.5 dBm
	802.11ac/VHT80MCS0	13 dBm
	802.11ac/VHT80MCS9	9 dBm

For information about the antennas requirements, refer to "Antennas list/Liste des antennes" on page 31.

6.2 Cellular and GNSS specifications

6.2.1 Cellular specifications

Feature	Description			
Key Features	LTE Cat 4 module optimized for M2M and IoT applications Maximum data rates up to 150 Mbps downlink and 50 Mbps uplink Worldwide LTE, UMTS/HSPA(+) and GSM/GPRS/EDGE coverage Downlink MIMO (Supports Rx-diversity Antenna)			
Supported Bands	LTE-FDD LTE-TDD WCDMA GSM	B1/ B2/ B3/ B4/ B5/ B7/ B8/ B12/ B13/ B18/ B19/ B20/ B25/ B26/ B28 B38/ B39/ B40/ B41 B1/ B2/ B4/ B5/ B6/ B8/ B19 B2/ B3/ B5/ B8		
Data	LTE UMTS GSM 	LTE-FDD LTE-TDD DC-HSDPA HSUPA WCDMA EDGE GPRS	Max 150 Mbps (DL)/ Max 50 Mbps (UL) Max 130 Mbps (DL)/ Max 30 Mbps (UL) Max 42 Mbps (DL) Max 5.76 Mbps (UL) Max 384 kbps (DL)/ Max 384 kbps (UL) Max 296 kbps (DL)/ Max 236.8 kbps (UL) Max 107 kbps (DL)/ Max 85.6 kbps (UL)	
TX Output Power	Class 4 Class 1 Class E2 Class 3 	33 dBm ± 2dB 33 dBm ± 2dB 30 dBm ± 2dB 30 dBm ± 2dB 27 dBm ± 3dB 27 dBm ± 3dB 26 dBm ± 3dB 26 dBm ± 3dB 24 dBm +1/-3 dB 23 dBm ± 2 dB 23 dBm ± 2 dB	for for for for for for for for for for for	GSM850 EGSM900 DCS1800 PCS1900 GSM850 8-PSK EGSM900 8-PS DCS1800 8-PSK PCS1900 8-PSK WCDMA bands LTE-FDD bands LTE-TDD bands

For information about the antennas requirements, refer to "Antennas list/Liste des antennes" on page 31.

6.2.2 GNSS specifications

Feature	Description		
Systems	GPS, GLONASS, BeiDou, Galileo, QZSS		
Sensitivity	Cold start Reacquisition Tracking	(autonomous) (autonomous) (autonomous)	-146 dBm -156 dBm -147 dBm
Time To First Fix (TTFF)	Cold start @ open sky Warm start @ open sky Hot start @ open sky 	(autonomous) (XTRA enabled) (autonomous) (XTRA enabled) (autonomous) (XTRA enabled)	35 s 15 s 28 s 3 s 2 s 1.6 s
Accuracy	CEP-50	(autonomous @ open sky)	< 2.5 m
Antenna Requirements (GNSS)	Frequency range: 1559 MHz to 1609 MHz Polarization: RHCP or linear VSWR: < 2 (Typ.) Passive antenna gain: > 0dBi Active antenna noise figure: <1.5dB Active antenna gain: > 0dBi Active antenna embedded LNA gain: < 17dB		

7 HARDWARE SPECIFICATIONS

This chapter gives the following information:

7.1 Block diagram

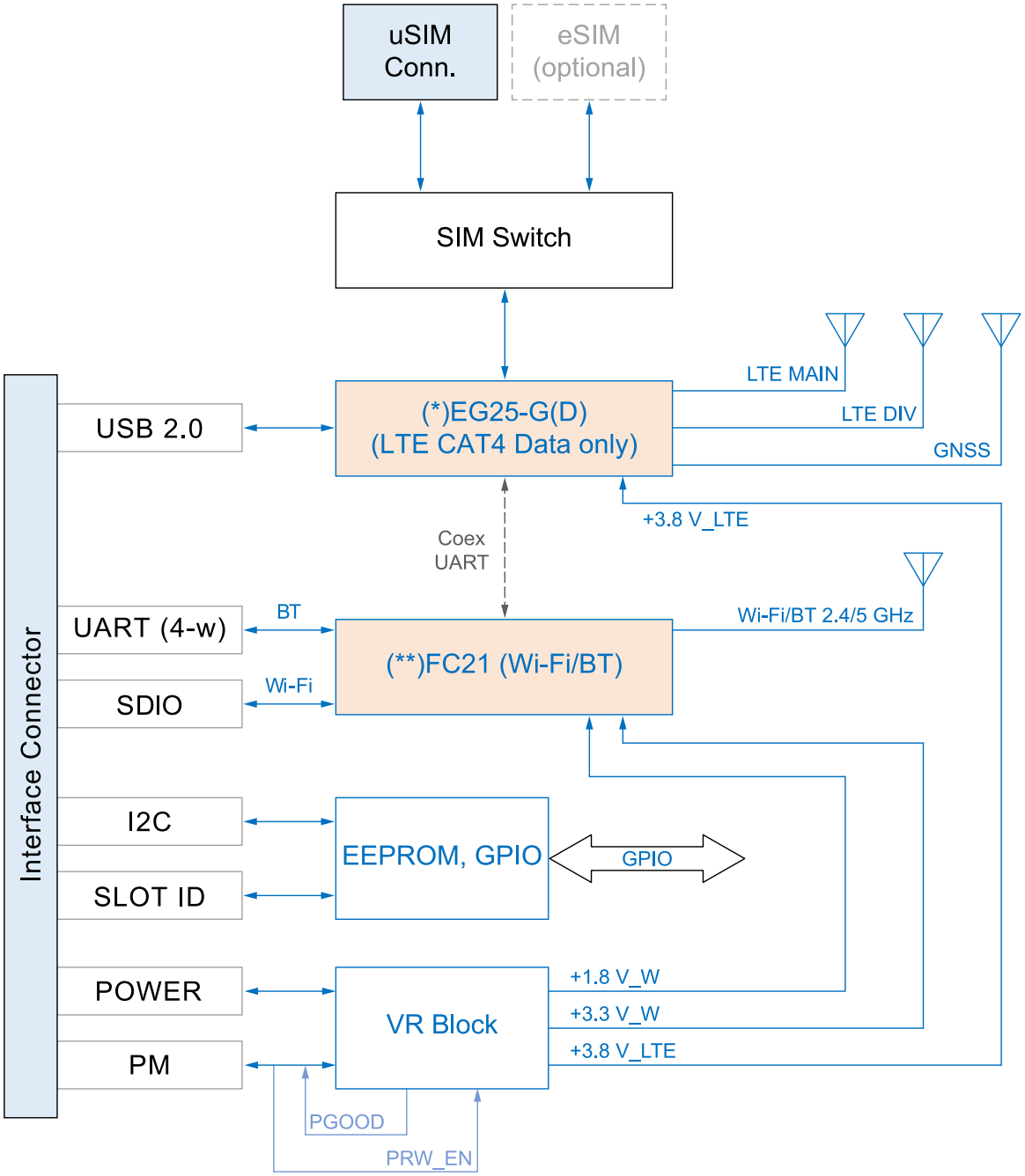


Fig. 3 - ReliaCELL 10-32 block diagram

7.2 Interfaces overview

The interfaces are as follows:

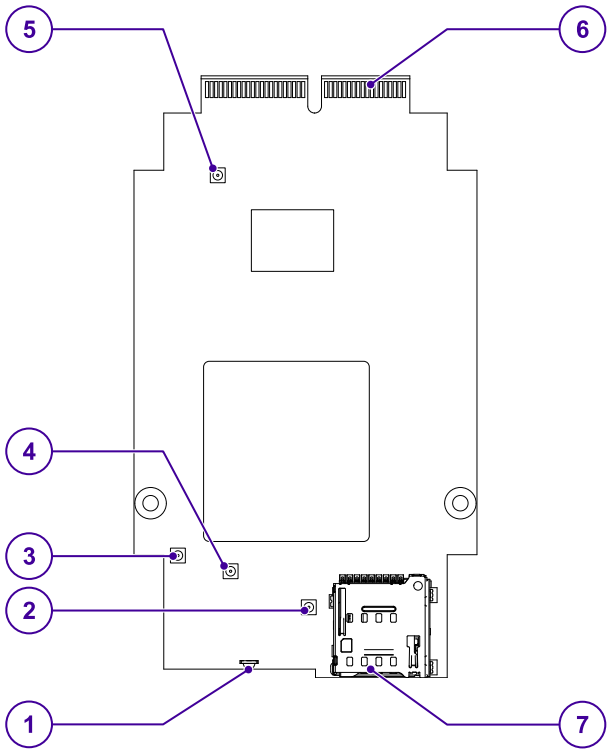


Fig. 4 - Interfaces layout

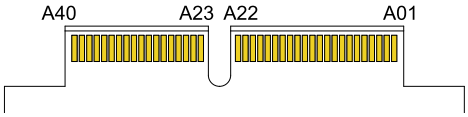
Ref #	Description
1	Dual-color LED. It works as follows:
2	Main LTE Cellular Antenna Connector (U.FL-R-SMT)
3	Diversity LTE Cellular Antenna Connector (U.FL-R-SMT)
4	GNSS Antenna Connector (U.FL-R-SMT)
5	Wi-Fi / BT Antenna Connector (U.FL-R-SMT)
6	Host Interface Connector (to Host CPU)
7	MicroSIM Card Holder

LED Color	Function	LED Status	Network Status
Amber	Network Registration Mode	ON	Registered on LTE network
		OFF	Others
Green	Network Status	Flicker slowly (200 ms ON / 1800 ms OFF)	Network searching
		Flicker slowly (1800 ms ON / 200 ms OFF)	Idle
		Flicker quickly (125 ms ON / 125 ms OFF)	Data transfer is ongoing
		ON	Voice calling

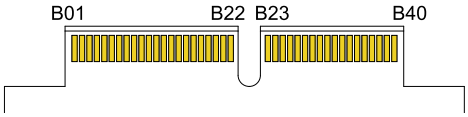
Tab. 1 - Interfaces description

7.2.1 Host Interface Connector specifications

Connector Layout - Row A - Bottom View:



Connector Layout - Row B - Top View:



Connector Specifications:

- Host Interface Connector (to Host CPU)
- Gender: Male

Mating Connector Specifications:

- Samtec HSEC8-140-01-S-DV (Vertical)
- HSEC8-140-01-S-RA (Right angle)

Connector Pinout (pins not listed are not connected):

Row A - Bottom View

Pin #	Signal	Type
A01	BT_UART_RXD	O
A02	BT_UART_TXD	I
A03	BT_UART_CTS	O
A04	BT_UART_RTS	I
A09	USB+	IO
A10	USB-	IO
A28	SYSRST#	I
A31	TAMPER#	OD
A32	V_TAMPER	P
A33	I2C_SCL_PM	I
A34	SLOT_ID0	I
A40	+5VA	P
GND pins:	A05, A08, A11, A16, A19, A23, A30, A35, A37, A39	

Row B - Top View

Pin #	Signal	Type
B17	SDIO_CMD	IO
B18	SDIO_CLK	I
B20	SDIO_D0	IO
B21	SDIO_D1	IO
B23	SDIO_D2	IO
B24	SDIO_D3	IO
B26	5VA_PGOOD	I
B27	+3.3VA	P
B29	IO_PWRGOOD	O (OD)
B30	PWREN	I
B31	IRQ#	O (OD)
B32	WAKE#	O (OD)
B33	I2C_DAT_PM	IO
B34	SLOT_ID1	I
B35	SLOT_ID2	I
B37	+5VA	P
B39	+5VA	P
GND pins:	B01, B04, B07, B10, B13, B16, B19, B22, B25, B36, B38, B40	

7.2.2 MicroSIM card holder

NOTICE

Disable the SIM PIN (Personal Identification Number) before you insert the SIM card. If the SIM PIN is enabled, the cellular connection will not work.

Turn OFF the product before inserting / removing the SIM card. SIM card hot-swapping is not supported.

The MicroSIM card holder is push-push type (push to insert, push to eject).

To insert the MicroSIM card, orient it as in the figure below:

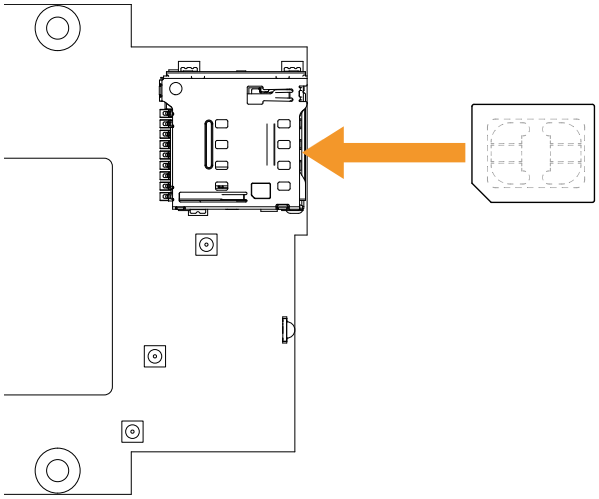


Fig. 5 - MicroSIM card orientation

7.3 Antennas list/*Liste des antennes*

CAUTION

Risk of radio emission exposure from high-gain antennas.
Use only the antennas specified in this section. Otherwise, the product will no longer be compliant with the intended use.
Install the product's antennas properly. Refer to "Installing the product's antennas properly" on page 7.

ATTENTION

Risque d'exposition aux émissions radio des antennes à haut gain.
Utilisez uniquement les antennes spécifiées dans cette section. Sinon, le produit ne sera plus conforme à l'utilisation prévue.
Installez correctement les antennes du produit. Référez-vous à la section "Instructions de sécurité pour les communications sans fil" page 10.

The ReliaCELL 10-32 has been certified with the following antennas:
Le ReliaCELL 10-32 a été certifié avec les antennes suivantes:

Types *Types*	Manufacturer and Model *Fabricant et Modèle*	Peak Gain (dBi) Max. Gain (dBi)
GNSS	2J Antennas 2J4301MPCF	• 3.9 dBi
Cellular	Quectel YE0001BA	• 8 dBi in WCDMA Band 2/LTE Band 2/7/25/38/41; • 5 dBi in WCDMA /LTE Band 4, and 8.6 dBi in GSM850; • 10.19 dBi in PCS1900; • 9.42 dBi in WCDMA Band 5; • 9.41 dBi in LTE Band 5; • 8.7 dBi in LTE Band 12; • 9.16 dBi in LTE Band 13; • 9.36 dBi in LTE Band 26(814-824); • 9.41 dBi in LTE Band 26(824-849)
Wi-Fi/BT	Quectel YEWN001AA	• 4.71 dBi @ 2.4 GHz; • 4.47 dBi @ 5 GHz

7.3.1 Notice for US

In the US, antennas must be used in compliance with the FCC requirements.

7.3.2 Notice for Canada/*Avis pour le Canada*

In the Canada, antennas must be used in compliance with the ISED requirements.
Au Canada, les antennes doivent être utilisées conformément aux exigences de la ISED.

8 MECHANICAL SPECIFICATIONS

This chapter gives the following information:

8.1 Product mechanical dimensions

The product has the following mechanical dimensions: 105 x 60 mm (L x W).

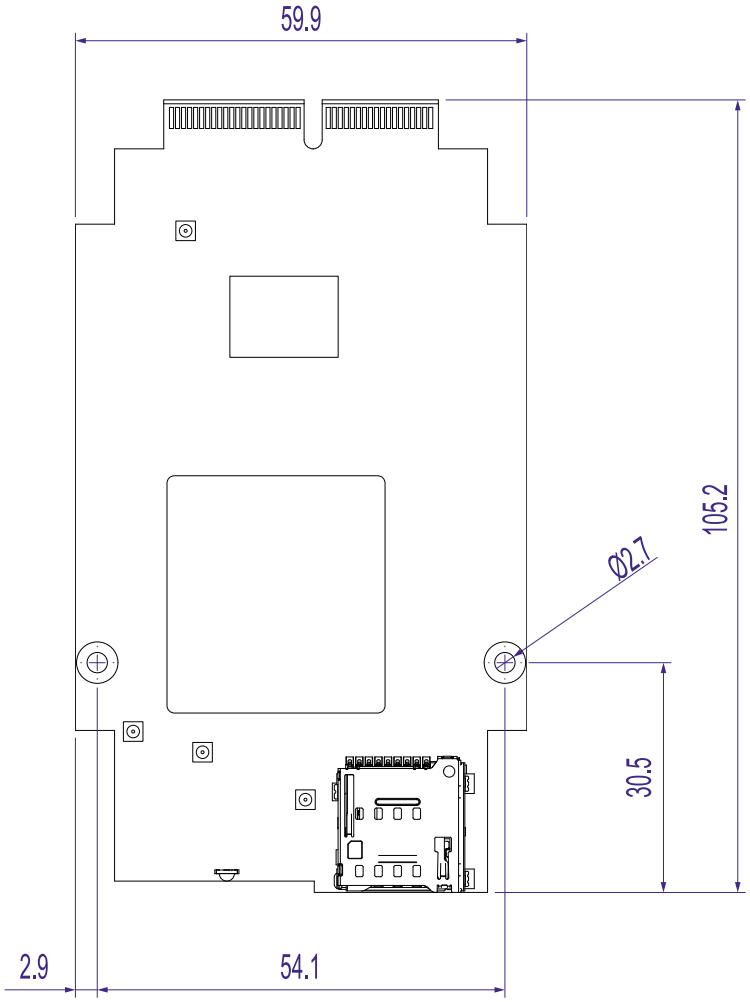


Fig. 6 - ReliaCELL 10-32 mechanical dimensions (in mm)

9 PRODUCT MAINTENANCE

This chapter gives the following information:

9.1 How to maintain the product

WARNING

The power cable remains energized even when disconnected from the product. Risk of electric shock and personal injury.

Always make sure that all the power supply sources are disconnected and all the circuits are fully discharged before servicing.

WARNING

Some electronic components may retain electrical energy even after the power supply sources are disconnected. Risk of electrical discharge and personal injury.

Always make sure that all the power supply sources are disconnected and all the circuits are fully discharged before servicing.

Periodically maintain the product to examine its integrity and to ensure its proper operation. A maximum inspection period of 2 years is recommended, though the installer must assess the impact of environmental conditions when selecting an appropriate inspection regime.

To maintain the product, complete this procedure:

1. Obey the instructions contained in the section "Safety instructions" on page 5
2. Remove the power supply from the product:
   a. Make sure that your hands are dry
   b. Turn OFF all the power supply sources
   c. Disconnect all the cables
   d. Make sure that all the circuits are discharged
3. Examine the product and cabling:
   a. Make sure that the product is not damaged
   b. Make sure that the LED indicators are visible and not damaged
   c. Make sure that the external cabling is not damaged or frayed
4. Clean the product:
   a. Do not use detergents, aerosol sprays, solvents or abrasive sponges
   b. Remove the dust: use a dry lint-free cloth
   c. Remove the dirt: use water-based non-flammable cleaning products
   d. Dry the product: use a dry lint-free cloth
5. Examine the product installation:
   a. Make sure that all the locking parts (for example: screws, bolts, nuts) are securely fastened
   b. Make sure that the product is installed correctly.

NOTES

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