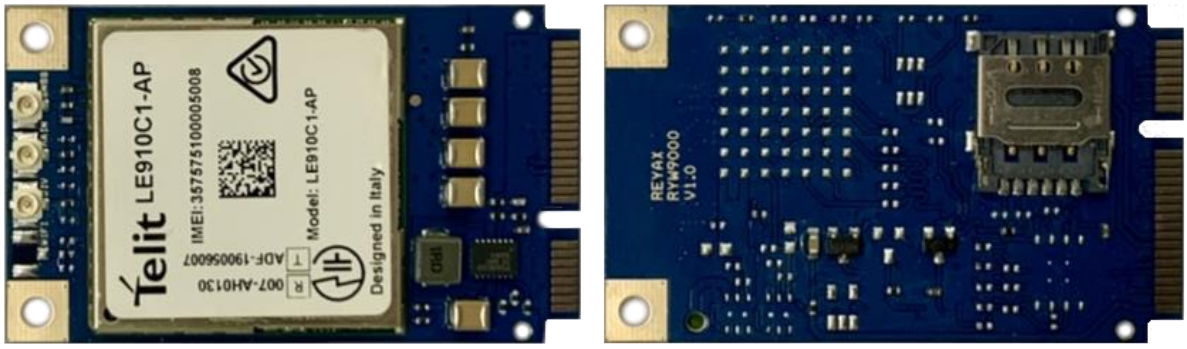
REYAX
TECHNOLOGY CORPORATION, LTD

6-July-2021 56312E32

RYR9000 Series

4G CAT1 LTE / GNSS mini PCIe card

Datasheet



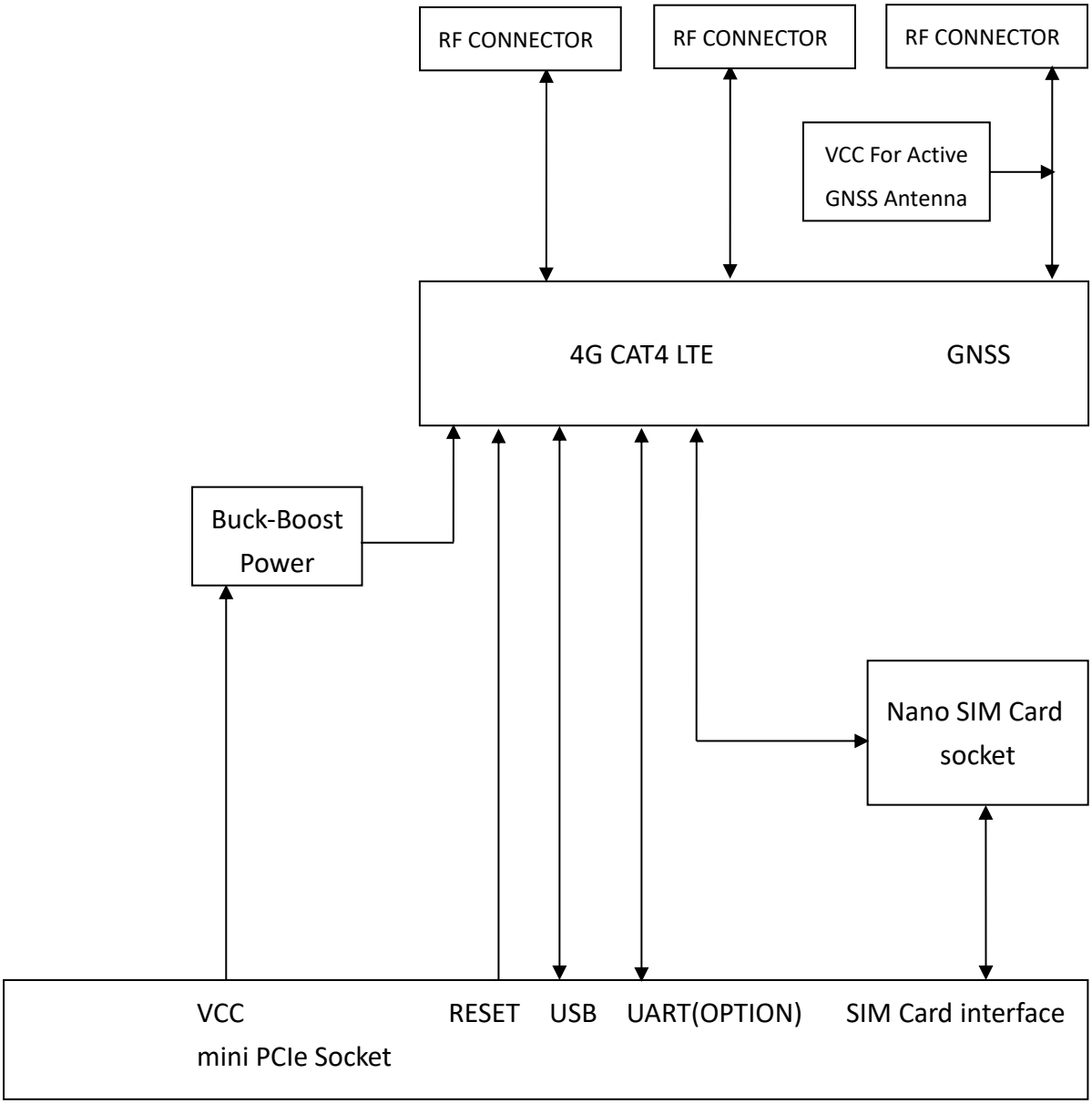
PRODUCT DESCRIPTION

The RYR9000 series is based on the PCI Express Mini Card standard with a USB 2.0 interface.

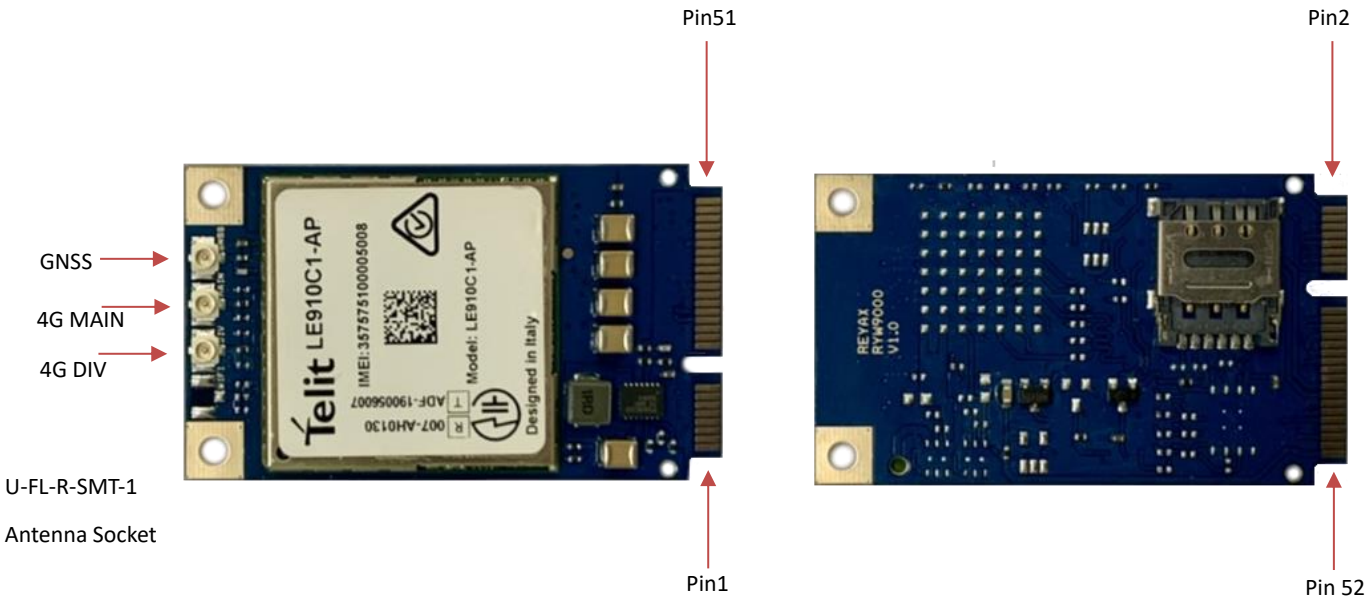
FEATURES

- TELIT LE910C1 4G CAT1 LTE & GNSS engine.
- Build-in nano SIM card holder.
- HIROSE U.FL-R-SMT-1 RF CONNECTOR.
- Standard mini PCIe .
- Mini PCIe Signal Type USB2.0.

BLOCK DIAGRAM



PIN CONNECTOR



PIN DESCRIPTION

Pin	Name	Input/Output	Description
1	NC		Not connected
2	VCC	Power	Power Input
3	NC		Not connected
4	GND		Power Ground
5	NC		Not connected
6	VREG_MSME	Output	The pin is always HI while RYR9000 is working.
7	NC		Not connected
8	SIM_VCC		External SIM signal – Power supply for the SIM
9	GND		Power Ground
10	SIM_IO	Input/Output	External SIM signal – Data I/O
11	NC		Not connected
12	SIM_CLK	Output	External SIM signal – Clock
13	NC		Not connected
14	SIM_RST	Output	External SIM signal – Reset

15	GND		Power Ground
16	NC		Not connected
17	NC		Not connected
18	GND		Power Ground
19	NC		Not connected
20	NC		Not connected
21	GND		Power Ground
22	RESET	Input	Keep Low over 1 second to reset.
23	TXD	Input	Serial data input (TXD) from DTE (UART Version only)
24	VCC	Power	Power Input
25	CTS	Output	Output for Clear to send signal (CTS) to DTE (UART Version only)
26	GND		Power Ground
27	GND		Power Ground
28	RTS	Input	Input for Request to send signal (RTS) from DTE. If flow control is not used, the RTS must be connected to GND. (UART Version only)
29	GND		Power Ground
30	DCD	Output	Output for Data Carrier Detect (DCD) to DTE (UART Version only)
31	RXD	Output	Serial data output to DTE (UART Version only)
32	NC		Not connected
33	NC		Not connected
34	GND		Power Ground
35	GND		Power Ground
36	USB_DN	Input/Output	USB Data Negative (Standard Version only)
37	GND		Power Ground
38	USB_DP	Input/Output	USB Data Positive (Standard Version only)
39	VCC	Power	Power Input

40	GND		Power Ground
41	VCC	Power	Power Input
42	STATUS_LED	Output	Status indicator LED, Open drain output.
43	GND		Power Ground
44	RING	Output	Output for Ring Indication (RI) to DTE (UART Version only)
45	NC		Not connected
46	DTR	Input	Input for Data Terminal Ready (DTR) from DTE (UART Version only)
47	NC		Not connected
48	DSR	Output	Output for Data Set Ready (DSR) to DTE (UART Version only)
49	NC		Not connected
50	GND		Power Ground
51	NC		Not connected
52	VCC	Power	Power Input

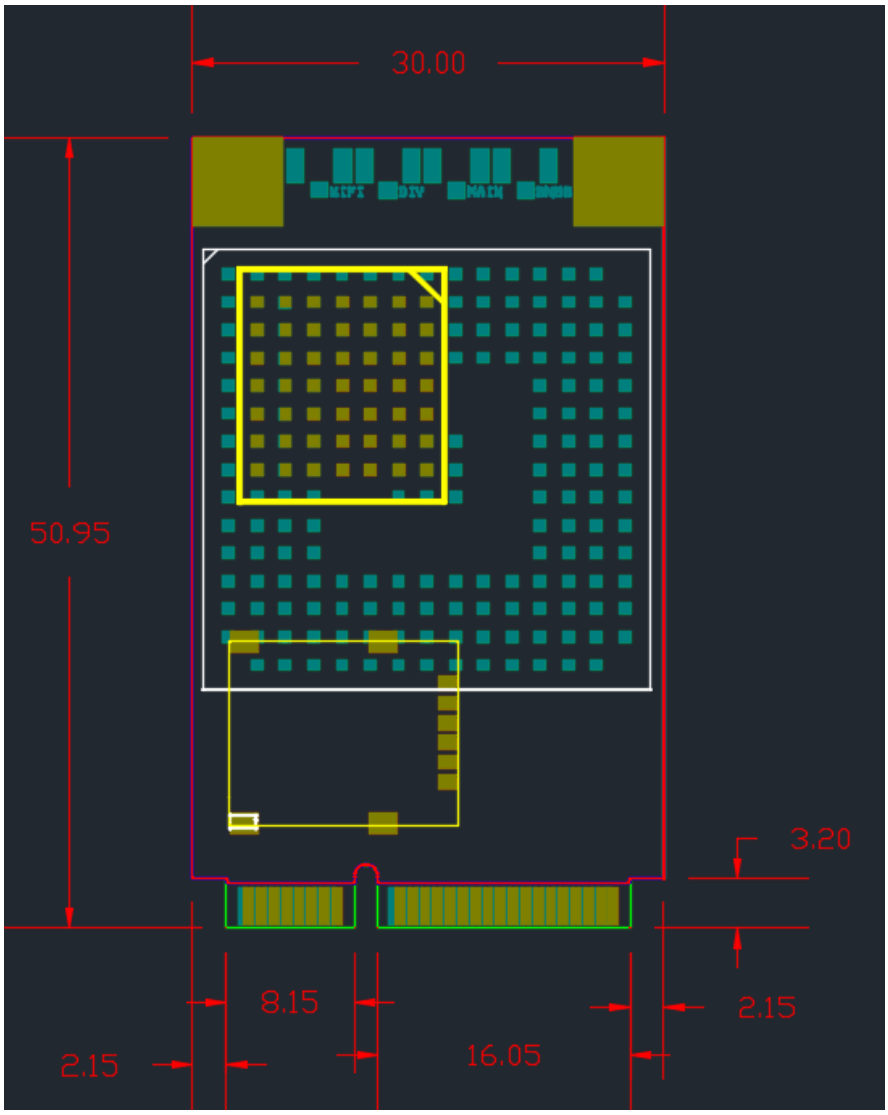
SPECIFICATION

Mode	4G & GNSS Engine	2G	HSPA+	LTE FDD
RYR91NA	LE910C1-NA	2, 3, 5, 8	1, 2, 4, 5, 8	2, 4, 12
RYR91NS	LE910C1-NS			2, 4, 5, 12, 25, 26
RYR91AP	LE910C1-AP		1, 5, 6, 8, 19	1, 3, 5, 8, 9, 18, 19, 26,28
RYR91EU	LE910C1-EU	3, 8	1, 3, 8	1, 3, 7, 8, 20, 28A
RYR91EX	LE910C1-EUX	3, 8	1, 3, 8	1, 3, 7, 8, 20, 28A
RYR91NF	LE910C1-NF		2, 4, 5	2, 4, 5, 12, 13, 14, 66, 71
RYR91LA	LE910C1-LA	2, 3, 5, 8	1, 2, 4, 5	1, 2, 3, 4, 5, 7, 28
RYR91WX	LE910C1-WWX	2, 3, 5, 8	1, 2, 4, 5, 8, 19	1, 2, 3, 4, 5, 7, 8, 12, 13, 14, 26, 19, 20, 28

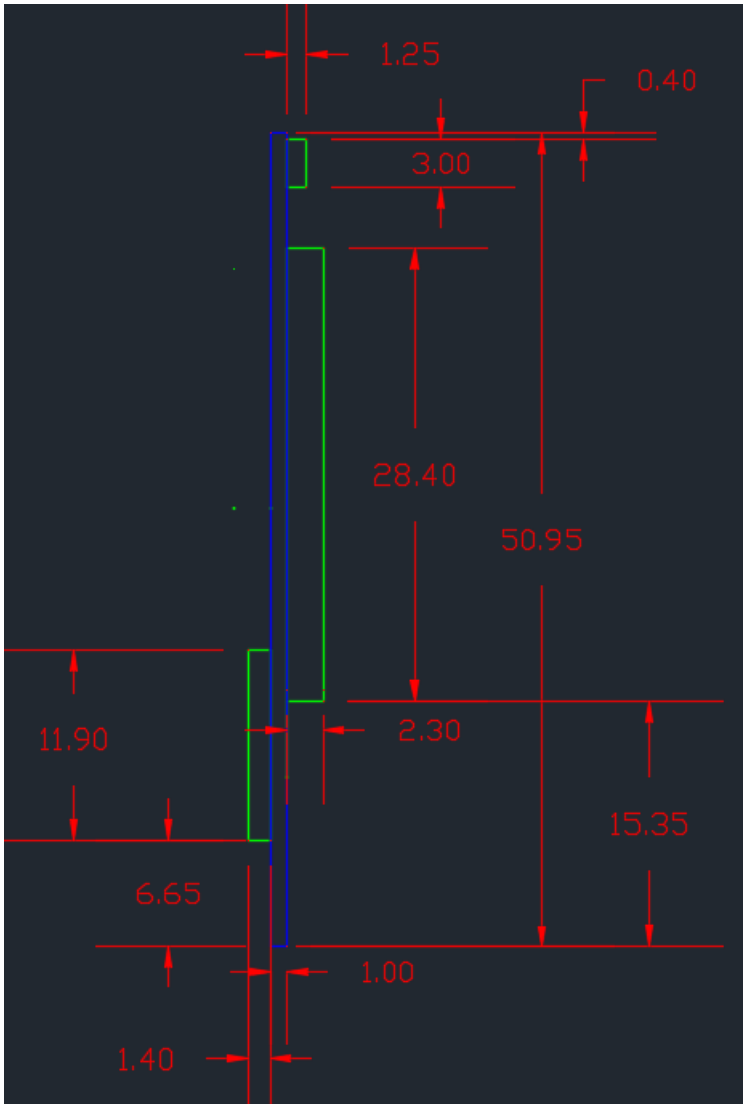
Item	Min.	Typ	Max.	Unit	Description
TELIT LE910C1 Series					
LTE FDD Category		1			
Downlink Speed		10		Mbps	
Uplink Speed		5		Mbps	
GNSS					
GNSS Center Frequency		1575.42 1602.5625		MHz	GPS Glonass
Navigation Update Rate		1		Hz	
Accuracy	0.8			M	CEP
Cold Start	30			Sec.	
Warm Start	23			Sec.	
Hot Start	1.1			Sec.	
Tracking Sensitivity		-160		dBm	
Cold Starts Sensitivity		-145		dBm	
Hot Starts Sensitivity		-147		dBm	

General					
Item	**Min.**	**Typ**	**Max.**	**Unit**	**Description**
Operating Voltage Power Input	3	3.3	5.5	V	VCC
VIH	1.25	1.8	1.95	V	High level input voltage
VIL			0.6	V	Low level input voltage
VOH	1.4	1.8		V	High level input voltage
VOL			0.45	V	Low level input voltage
USB Interface					V2.0
Operating Temperature Range	-40	25	+85	˚C	4G LTE
Dimension					mini PCIe Standard 50.95mm*30mm
Antenna Connector		3			U.FL-R-SMT-1
Weight		11		g	

DIMENSIONS



Unit:mm



Unit:mm

ORDER INFORMATION

Ordering No.	4G & GNSS Engine	UART Interface
RYR91NA	LE910C1-NA	Not connected
RYR91NS	LE910C1-NS	Not connected
RYR91AP	LE910C1-AP	Not connected
RYR91EU	LE910C1-EU	Not connected
RYR91EX	LE910C1-EUX	Not connected
RYR91NF	LE910C1-NF	Not connected
RYR91LA	LE910C1-LA	Not connected
RYR91WX	LE910C1-WWX	Not connected
RYR91NA_UART	LE910C1-NA	Connected
RYR91NS_UART	LE910C1-NS	Connected
RYR91AP_UART	LE910C1-AP	Connected
RYR91EU_UART	LE910C1-EU	Connected
RYR91EX_UART	LE910C1-EUX	Connected
RYR91NF_UART	LE910C1-NF	Connected
RYR91LA_UART	LE910C1-LA	Connected
RYR91WX_UART	LE910C1-WWX	Connected

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