WW-4021, LTE Cat M1, NB1/2 Mini PCIe card w/ UART

RoHS Compliant



Overview

WW-4021 is designed based on Telit Cinterion LTE LPWAN technology.

It supports both LTE Cat M1 and Cat NB1/2 wireless WAN technologies. Not only exhibits excellent hardware/radio frequency performance, it also supports rich software for fast product development.

It is an ideal solution for the vast number of M2M and industrial IoT applications that are not dependent on speed but that requires the low cost, high capacity, and longevity of LTE/5G mMTC networks.

Applications

- Financial / Security / Payment / Inventory / Healthcare
- Kiosk / Digital Signage / Intelligent Vending Machine
- POS / Automatic Meter Reading / Smart Meters
- School Bus / Transit / Taxi / Police
- Tracking & Tracing / Fleets Management
- Mobile Internet Terminal / Fixed Wireless Terminal
- Remote Monitoring / Telematics / eHealth
- Agriculture / Connected Sensors
- Smart City

Features

- LTE Cat M1 and Cat NB1/2 support
- 3.3V UART using TXD/RXD, CTS/RTS
- Power ON/OFF control
- On board LED for power status indication
- On-board SIM holder option
- Built-in RF antenna connector
- Powered by Telit Cinterion TX62-W-B module
  - LTE Cat M1 (MHz)
    - 700 (B12, B23, B28, B85)
    - 800 (B18, B19, B20, B26, B27)
    - 850 (B5)
    - 900 (B8)
    - AWS-3 (B66)
    - AWS-1 (B4)
    - 1800 (B3)
    - 1900 (B2, B25)
    - 2100 (B1)
  - LTE Cat NB1/2 (MHz)
    - 600 (B71)
    - 700 (B12, B13, B28, B85),
    - 800 (B18, B19, B20, B26),
    - 850 (B5),
    - 900 (B8),
    - AWS-3 (B66),
    - AWS-1 (B4),
    - 1800 (B3),
    - 1900 (B2, B25),
    - 2100 (B1)
- USB 2.0 High Speed (480Mbit/s) device interface, Full Speed (12Mbit/s) compliant
- UART baud rate adjustable, 300bps to 921,600bps
- Embedded IP stack with IPv4 and IPv6
- Secure connection with TLS/DTLS
- Internet Services TCP/UDP server/client, DNS, Ping, HTTP/FTP/MQTT/CoAP client etc.
- **eSIM** support, BIP (Bearer Independent Protocol)
- SIM Access Profile (SAP)
- Abnormal temperature protection of module board (out of -40~90℃; a tolerance of ±3°C on the thresholds may occur)

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- Drivers support for Windows, Linux/Android platforms.

Technical Specifications

Wireless WAN

Frequency bands	**LTE Cat M1:** 700 (Bd12, Bd13, Bd28, Bd85), 800 (Bd18, Bd19, Bd20, Bd26, Bd27), 850 (Bd5), 900 (Bd8), AWS-3 (Bd66), AWS-1 (Bd4), 1800 (Bd3), 1900 (Bd2, Bd25), 2100 (Bd1) **LTE Cat NB1/2:** 600 (Bd71), 700 (Bd12, Bd13, Bd28, Bd85), 800 (Bd18, Bd19, Bd20, Bd26), 850 (Bd5), 900 (Bd8), AWS-3 (Bd66), AWS-1 (Bd4), 1800 (Bd3), 1900 (Bd2, Bd25), 2100 (Bd1)
Output power (according to 3GPP Release 13)	**LTE Cat M1:** Class 3 (+23dBm ±2dB) for all supported LTE Cat M1 bands **LTE Cat NB1/2:** Class 3 (+23dBm ±2dB) for all supported LTE Cat NB1/2 bands
LTE Features 3GPP Release 14	DL 300kbps, UL 1.1Mbps (Cat M1) DL 27kbps, UL 63kbps (Cat NB1) DL 124kbps, UL 158kbps (Cat NB2)
SMS	Point-to-point MT and MO Text and PDU mode Storage: SIM card plus SMS locations in mobile equipment
AT commands	Hayes 3GPP TS 27.007, TS 27.005, Cinterion M2M AT commands for RIL compatibility
SIM UICC	SIM Application Toolkit: SAT Release 99 Support of 1.8 V SIM/USIM cards

Electrical Data

Power supply	3.3 ± 0.3 V (VCC)

Environmental Data

TX62-W-B board temperature	Normal operation -30 ~ 85 ℃ Extended operation -40 ~ 90℃*

* Occasional deviations from spec may occur

Mechanical Data (mm) - (full-mini card)

30 x 50.9 x 4.46 (w/o SIM holder)

52-Pin Definition

Name	PINs	Function	I/O
VCC	2,24,39,41,52	3.3 ± 0.3V power supply	Input
GND	4,9,15,18,21,26,27,29,34,35,37,40,43,50	Ground	Input
USB_DM	36	USB data signal minus	I/O
USB_DP	38	USB data signal plus	I/O
LED_WWAN	42	WWAN status indicator; Open Drain	Output
SIM_VCC	8[!]	Power for SIM card	Output
SIM_DATA	10[!]	SIM data signal	I/O
SIM_CLK	12[!]	SIM clock signal	Output
SIM_RESET	14[!]	SIM reset signal	Output
PWR_CTL[#]	20	High (>2.5V) to power up card. Low (< 0.5V) to power down card, Default: Low. Internally 10kΩ pull-down. Pull up with 0~1kΩ..	Input
nRESET[v]	22	Active low reset signal, min 800ms; Direct connect or NC	Input
TXD[#]	3	UART data into card, Direct connect or NC	Input
RXD[#]	5	UART data out of card Direct connect or NC	Output
RTS[#]	17	UART request to send Direct connect or NC	Input

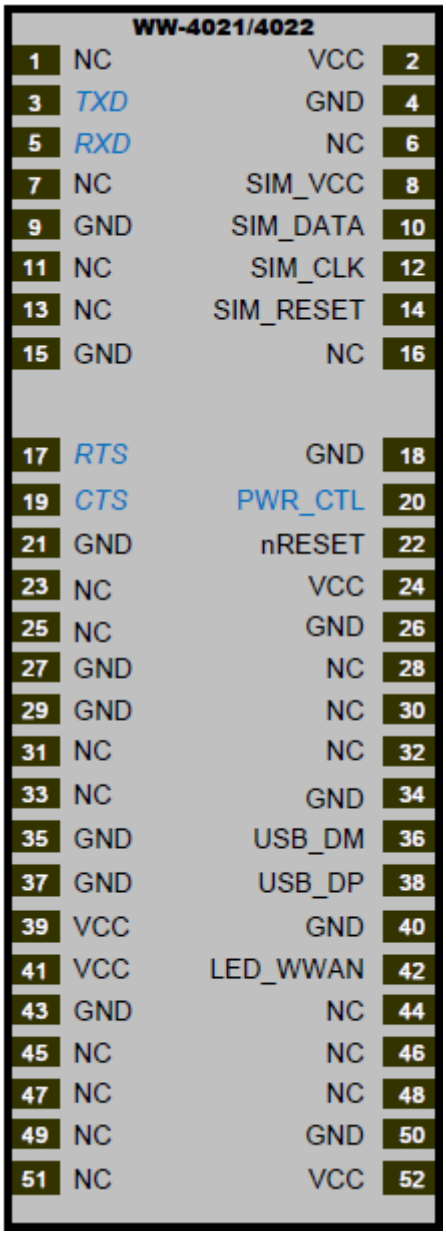
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CTS#	19	UART clear to send Direct connect or NC	Output
NC	Remaining pins	No connection	-

! Leave these pins open if they are not used

Reserved pins used, proprietary

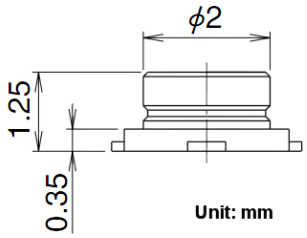
v No connect (NC) for specified model



LED for Power Status Indication

- LED ON: Power on
- LED OFF: Power OFF

RF Connector: I-PEX Receptacle



Note. Corresponding plug cable: diameter of 1.13mm

Ordering Information

WW-4021 is with following features

- Power control via pin 20 (PWR_CTL)
- 3.3V TTL I/O via, TXD/RXD, CTS/RTS
- LED for power status indication
- No sim card holder

*Customizations are welcome.

Related Models of WW-402X

Feature \ Model X=	0	1	2
USB	Y	Y	Y
UART TTL IO	-	3.3V	3.3V
Sim holder	Y	-	Y
Onboard LED	-	Y	Y
Pin 1 (nWAKE)	Y	-	-
Pin 20 (PWR_CTL)	-	Y	Y

*This document is subject to change without notice.