# **Amphenol**

#### LTE CAT1 Module



#### **Overview**

A1310EA is the LTE Cat 1 module which supports wireless communication modes of LTE-TDD/LTE-FDD/ GSM/GPRS. It supports maximum 10Mbps downlink rate and 5Mbps uplink rate.

A1310EA supports multiple built-in network protocols, supports drivers for main operation systems (USB driver for Windows, and Linux etc.) and software function.

A1310EA integrates main industrial standard interfaces, with powerful expansibility, including abundant interfaces such as UART, USB, I2C, GPIO, which is suitable for main IoT applications such as telematics, surveillance devices, CPE, industrial routers, and remote diagnostics etc.

## **Key Feature**

- ➤ -40°C to +85°C, industrial-grade
- > TCP/IP/UDP/MQTT/HTTP(s)/FTP IoT protocols
- ➤ Compact size: 29.0mm × 30.0 mm × 2.6 mm

## **Key Benefit**

- LCC+LGA form factor with abundant interfaces
- > Suitable for LTE and GSM networks
- Abundant software functions: FOTA, LBS, SSL

#### **Application Interfaces**

- Power Supply
- ◆ USB2.0 Interface
- UART Interfaces
- ♦ MMC/SD Interface
- ◆ USIM Interface
- ◆ GPIOs

- ◆ ADC
- One channel LDO Power Output
- ◆ PCM Interface
- ♦ I2C Interface
- SPI Interface
- Analog Audio Interface

AMPHENOL 1

## **Features**

Power supply         Single supply voltage 3.4 ~ 4.2 V, recommend 3.8 V.           Power saving         Current in sleep mode : <3 mA           3GPP Standards         Rel.13 Ibis           FOD-LTE: B1, 83, 85, 87, 88, 820, 828           Radio frequency bands         TDD-LTE: B38, 840, 841           GSM: 83, 88         GPRS multi-slot class 12: 85.6 kbps (UL). 107 kbps (DL).           FOD-LTE: 10 Mbps (DL), 5 Mbps (UL).         GSM/LTE main antenna           Antenna         B17/WiFi antenna           GNSS         GPRS antenna (Optional)           Optional         GNSS antenna (Optional)           GNSS         GNSS engine (GPS, GLONASS and GALILEO)           BT         Support WiFi scan           WiFi Scan         Support WiFi scan           MT, MO, CB, Text and PDU mode           SMS         SMS storage: USIM card or ME(default)           Transmission of SMS alternatively over CS or PS.           USIM interface         Support Both district (SMS) and SMS, SMM, FD,ON,LD,EN           USIM application toolkit         Support PCM interface           USIM application toolkit         Support PCM interface           After Interfaces         Support PCM interface           UART interfaces         Support PCM interface           UART interfaces         Support SD Cards with 3 3 V on SD port <th>Feature</th> <th>Implementation</th>	Feature	Implementation
Redio frequency bands  Redio frequency bands  Radio frequency bands  TDD-LTE: B1, B3, B5, B7, B8, B20, B28  TDD-LTE: B38, B40, B41 GSM: B3, B8  GPRS multi-slot class 12: 85.6 kbps (UL), 107 kbps (DL). FDD-LTE: 10 Mbps (DL), 5 Mbps (UL).  GSM/LTE main antenna  Antenna  BT/WiFi antenna GMSS antenna (Optional)  Optional GMSS angline (GPS, GLONASS and GAULEO)  BT  Support Bluetooth 4.2/BLE  WiFi Scan  MT, MO, CB, Text and PDU mode SMS storage: USIM card or ME(default) Transmission of SMS atternatively over CS or PS.  USIM interface  Support identify card: 1.8 V / 3 V  Support SAT class 3, GSM 11.14 Release 98 Support Water and Support PCM interface  Only support PCM interface  Only support PCM master mode and short frame sync, 16-bit linear data formats  Main UART: A full modem serial port by default Baud rate: 9600 bps to 3.6Mbps (detault:115200 bps)  Can be used as the AT commands or data stream channel Support RS/CTS hardware handshake Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD  Support SD Cards with 3.3 V on SD port  USB  USB2.0 high speed interface  Normal operation temperature: -40°C - +75°C  Temperature range  Extended operation temperature: -30°C - +75°C  Extended operation temperature: -30°C - +75°C  Extended operation temperature: -30°C - +75°C	Power supply	Single supply voltage $3.4 \sim 4.2 \text{ V}$ , recommend $3.8 \text{ V}$ .
Radio frequency bands  FDD-LTE: B1, B3, B5, B7, B8, B20, B28  TDD-LTE: B3B, B40, B41  GSM: B3, B8  GPRS multi-slot class 12: 85.6 kbps (UL). 107 kbps (DL).  FDD-LTE: 10 Mbps (DL), 5 Mbps (UL).  GSM/LTE main antenna  BT/WiFi antenna  GNSS antenna (Optional)  GNSS  GNSS  GNSS and GAULEO)  BT  Support Bluetooth 4.2/BLE  WiFi Scan  MT, MO, CB, Text and PDU mode  SMS storage: USIM card or ME(default)  Transmission of SMS alternatively over CS or PS.  USIM interface  USIM application toolkit  Support Bluetoob ktypes: DC,MC,RC,SM,ME,FD,ON,LD,EN  Support Bouletook ktypes: DC,MC,RC,SM,ME,FD,ON,LD,EN  Audio feature  Only support PCM interface  Only support PCM master mode and short frame sync, 16-bit linear data formats  Main UART:  A full modem serial port by default  Baud rate: 9600 bps to 3,6Mbps (default:115200 bps)  Can be used as the AT commands or data stream channel  Support RTS/CTS hardware handshake  Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD  Support SD Cards with 3.3 V on SD port  USB  USB2 USB2.0 high speed interface  Certification  CE,ROHS,REACH,CCF+  Firmware upgrade  Firmware upgrade  Extended operation temperature: -40°C ~ +75°C  Extended operation temperature: -20°C ~ +75°C  Extended operation temperature: -20°C ~ +75°C  Extended operation temperature: -40°C ~ +85°C	Power saving	Current in sleep mode : <3 mA
Radio frequency bands GSM: B3, B8  Data Transmission Throughput  FPD-LTE: 10 Mbps (DL), 5 Mbps (UL), 107 kbps (DL), FDD-LTE: 10 Mbps (DL), 5 Mbps (UL), GSM/LTE main antenna  BT/WiFi antenna GSMS antenna (Optional)  GNSS GNSS GNSS and GALILEO)  BT Support Bluetooth 4.2/BLE  WiFi Scan  MT, MC, CB, Text and PDU mode SMS SMS storage: USIM card or ME(default) Transmission of SMs alternative) over CS or PS.  USIM interface  USIM application toolkit Support Bonebook types: DC,MC,RC,SM,ME,FD,ON,LD,EN  Audio feature  UART interfaces  Wain UART: A full modern serial port by default Baud rate: 9600 bps to 3,6Mbps (default:115200 bps) Can be used as the AT commands or data stream channel Support RTS/CTS hardware handshake Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD Support SD Cards with 3.3 V on SD port  USB USB2 USB2.0 high speed interface Certification CEROHS,REACH, CCF+ Firmware upgrade Firmware upgrade Extended operation temperature: -40°C ~ +75°C Extended operation temperature: -40°C ~ +75°C Extended operation temperature: -40°C ~ +85°C	3GPP Standards	Rel.13 1bis
GSM: B3, B8  GPRS multi-slot class 12: 85.6 kbps (UL). 107 kbps (DL). FDD-LTE: 10 Mbps (DL). 5 Mbps (UL). GSM/LTE main antenna BT/WiFi antenna GNSS antenna (Optional)  Optional GNSS optional GNSS engine (GPS, GLONASS and GALILEO)  BT Support Bluetooth 4.2/BLE WiFi Scan Support WiFi scan MT, MO, CB, Text and PDU mode SMS Storage: USIM card or ME(default) Transmission of SMS alternatively over CS or PS.  USIM interface Support identity card: 18 V / 3 V  USIM application toolkit Support USAT Phonebook management Support phonebook types: DC,MC,RC,SM,ME,FD,ON,LD,EN Support PCM interface Only support PCM master mode and short frame sync, 16-bit linear data formats Main UART: A full modem serial port by default: Baudr ate: 9600 bps to 3.6Mbps (default:115200 bps) Can be used as the AT commands or data stream channel Support RTS/CTS hardware handshake Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD Support SD Cards with 3.3 V on SD port USB USB2.0 high speed interface Certification CE,ROHS,REACH,GCF* Firmware upgrade Firmware upgrade over USB interface Normal operation temperature: -40°C ~ +85°C	Radio frequency bands	FDD-LTE: B1, B3, B5, B7, B8, B20, B28
Data Transmission Throughput  GPRS multi-slot class 12: 85.6 kbps (UL). 107 kbps (DL). FDD-LTE: 10 Mbps (DL). 5 Mbps (UL).  GSM/LTE main antenna BT/WiFi antenna BT/WiFi antenna GNSS antenna (Optional)  Optional GNSS engine (GPS, GLONASS and GALILEO)  BT Support Bluetooth 4.2/BLE  WiFi Scan Support WiFi scan MT, MO, CB, Text and PDU mode  SMS Storage: USIM card or ME(default) Transmission of SMS alternatively over CS or PS.  USIM interface Support identity card: 1.8 V / 3 V  USIM application toolkit Support USAT  Phonebook management Support phonebook types: DC,MC,RC,SM,ME,FD,ON,LD,EN  Support PCM interface Only support PCM master mode and short frame sync, 16-bit linear data formats  Main UART: A full modem serial port by default Baud rate: 9600 bps to 3.6Mbps (default:115200 bps) Can be used as the AT commands or data stream channel Support RTS/CTS hardware handshake Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD Support SD Cards with 3.3 V on SD port  USB USB2.0 high speed interface Certification CE,ROHS,REACH,GCF+ Firmware upgrade Firmware upgrade over USB interface Normal operation temperature: -40°C − +85°C		TDD-LTE: B38, B40, B41
Antenna  FDD-LTE: 10 Mbps (DL), 5 Mbps (UL).  GSM/LTE main antenna BT/WiFi antenna GNSS antenna (Optional)  Optional GNSS antenna (Optional)  Optional GNSS engine (GPS, GLONASS and GALILEO)  BT  Support Bluetooth 4.2/BLE  WiFi Scan  MT, MO, CB, Text and PDU mode  SMS  SMS storage: USIM card or ME(default) Transmission of SMS alternatively over CS or PS.  USIM interface  Support SAT class 3, GSM 11.14 Release 98 Support USAT  Phonebook management  Support PCM interface  Only support PCM master mode and short frame sync, 16-bit linear data formats  Main UART: Baud rate: 9600 bps to 3.6Mbps (default:115200 bps) Can be used as the AT commands or data stream channel Support RTS/CTS hardware handshake Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD  Support SD Cards with 3.3 V on SD port  USB  USB2.0 high speed interface Pirmware upgrade Firmware upgrade over USB interface Normal operation temperature: -40°C − +85°C  Temperature range Extended operation temperature: -40°C − +75°C		GSM: B3, B8
Antenna  Antenna  BT/WiFi antenna BT/WiFi antenna GNSS antenna (Optional)  Optional GNSS GNSS engine (GPS, GLONASS and GALILEO)  BT  Support Bluetooth 42/BLE  WiFi Scan  MT, MO, CB, Text and PDU mode SMS storage: USIM card or ME(default) Transmission of SMS alternatively over CS or PS.  USIM interface  Support dentity card: 1.8 V / 3 V  Support SAT class 3, GSM 11.14 Release 98 Support USAT  Phonebook management  Support PCM interface Only support PCM interface Only support PCM master mode and short frame sync, 16-bit linear data formats  Main UART: A full modem serial port by default Baud rate: 9600 bps to 3.6Mbps (default:115200 bps) Can be used as the AT commands or data stream channel Support RTS/CTS hardware handshake Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD  Support SD Cards with 3.3 V on SD port  USB  USB2.0 high speed interface Firmware upgrade Firmware upgrade Firmware upgrade over USB interface Normal operation temperature: -40°C ~ +85°C	Data Transmission Throughput	GPRS multi-slot class 12: 85.6 kbps (UL). 107 kbps (DL).
Antenna BT/WiFi antenna GNSS antenna (Optional)  Optional GNSS engine (GPS, GLONASS and GALILEO)  BT Support Bluetooth 4.2/BLE  WiFi Scan Support WiFi scan MT, MO, CB, Text and PDU mode SMS storage: USIM card or ME(default) Transmission of SMS alternatively over CS or PS.  USIM interface Support identity card: 1.8 V / 3 V  USIM application toolkit Support USAT  Phonebook management Support planebook types: DC,MC,RC,SM,ME,FD,ON,LD,EN  Audio feature Only support PCM interface Only support PCM master mode and short frame sync, 16-bit linear data formats  Main UART: A full modem serial port by default Baud rate: 9600 bps to 3.6Mbps (default:115200 bps) Can be used as the AT commands or data stream channel Support RTS/CTS hardware handshake Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD Support SD Cards with 3.3 V on SD port  USB USB2.0 high speed interface Certification CE,ROHS,REACH,GCF- Firmware upgrade Firmware upgrade over USB interface Normal operation temperature: -40°C ~ +75°C Temperature range Extended operation temperature: -40°C ~ +85°C		FDD-LTE: 10 Mbps (DL), 5 Mbps (UL).
GNSS antenna (Optional) Optional GNSS engine (GPS, GLONASS and GALILEO)  BT Support Bluetooth 4.2/BLE WiFi Scan Support WiFi scan MT, MO, CB, Text and PDU mode SMS MS storage: USIM card or ME(default) Transmission of SMS alternatively over CS or PS.  USIM interface Support identity card: 1.8 V / 3 V  Support SAT class 3, GSM 11.14 Release 98 Support USAT  Phonebook management Support phonebook types: DC.MC.RC.SM.ME.FD.ON.LD.EN  Support PCM interface Only support PCM master mode and short frame sync, 16-bit linear data formats  Main UART: A full modem serial port by default Baud rate: 9600 bps to 3.6M/bps (default:115200 bps) Can be used as the AT commands or data stream channel Support RTS/CTS hardware handshake Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD Support SD Cards with 3.3 V on SD port  USB USB2.0 high speed interface Certification CE.ROHS.REACH,GCF+ Firmware upgrade Firmware upgrade over USB interface Normal operation temperature: -40°C - +75°C Temperature range Extended operation temperature: -40°C - +85°C	Antenna	GSM/LTE main antenna
GNSS Optional GNSS engine (GPS, GLONASS and GALILEO)  BT Support Bluetooth 4.2/BLE  WiFi Scan Support WiFi scan  MT, MO, CB, Text and PDU mode  SMS MS storage: USIM card or ME(default) Transmission of SMS alternatively over CS or PS.  USIM interface Support identity card: 1.8 V / 3 V  USIM application toolkit Support SAT class 3, GSM 11.14 Release 98 Support USAT  Phonebook management Support phonebook types: DC,MC,RC,SM,ME,FD,ON,LD,EN  Support PCM interface Only support PCM master mode and short frame sync, 16-bit linear data formats  Main UART: A full modem serial port by default Baud rate: 9600 bps to 3.6Mbps (default:115200 bps) Can be used as the AT commands or data stream channel Support RTS/CTS hardware handshake Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD Support SD Cards with 3.3 V on SD port  USB USB2.0 high speed interface Certification CE,ROHS,REACH,GCF* Firmware upgrade Firmware upgrade over USB interface Normal operation temperature: -40°C ~ +75°C Temperature range Extended operation temperature: -40°C ~ +85°C		BT/WiFi antenna
SNSS engine (GPS, GLONASS and GALILEO)  BT Support Bluetooth 4.2/BLE  WiFi Scan Support WiFi scan MT, MO, CB, Text and PDU mode  SMS SMS storage: USIM card or ME(default) Transmission of SMS alternatively over CS or PS.  USIM interface Support identity card: 1.8 V / 3 V  Support SAT class 3, GSM 11.14 Release 98 Support USAT  Phonebook management Support phonebook types: DC,MC,RC,SM,ME,FD,ON,LD,EN  Audio feature Only support PCM interface Only support PCM master mode and short frame sync, 16-bit linear data formats Main UART: A full modem serial port by default Baud rate: 9600 bps to 3.6Mbps (default:115200 bps) Can be used as the AT commands or data stream channel Support RTS/CTS hardware handshake Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD Support SD Cards with 3.3 V on SD port  USB USB2.0 high speed interface Certification CE,ROHS,REACH,GCF* Firmware upgrade Firmware upgrade over USB interface Normal operation temperature: -40°C ~ +75°C Temperature range Extended operation temperature: -40°C ~ +85°C		GNSS antenna (Optional)
GNSS engine (GPS, GLONASS and GALILEO)  BT Support Bluetooth 4.2/BLE  WiFi Scan Support WiFi scan  MT, MO, CB, Text and PDU mode  SMS storage: USIM card or ME(default)  Transmission of SMS alternatively over CS or PS.  USIM interface Support identity card: 1.8 V / 3 V  Support SAT class 3, GSM 11.14 Release 98  Support USAT  Phonebook management Support phonebook types: DC,MC,RC,SM,ME,FD,ON,LD,EN  Support PCM interface Only support PCM master mode and short frame sync. 16-bit linear data formats  Main UART: A full modem serial port by default  Baud rate: 9600 bps to 3.6Mbps (default:115200 bps)  Can be used as the AT commands or data stream channel  Support RTS/CTS hardware handshake Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD Support SD Cards with 3.3 V on SD port  USB USB2.0 high speed interface  Certification CE,ROHS,REACH,GCF*  Firmware upgrade Firmware upgrade over USB interface  Normal operation temperature: -40°C ~ +85°C	GNSS	Optional
WiFi Scan  Support WiFi Scan  MT, MO, CB, Text and PDU mode  SMS  SMS storage: USIM card or ME(default)  Transmission of SMS alternatively over CS or PS.  USIM interface Support identity card: 1.8 V / 3 V  Support SAT class 3, GSM 11.14 Release 98  Support USAT  Phonebook management Support phonebook types: DC,MC,RC,SM,ME,FD,ON,LD,EN  Support PCM interface Only support PCM master mode and short frame sync, 16-bit linear data formats  Main UART: A full modem serial port by default Baud rate: 9600 bps to 3.6Mbps (default:115200 bps) Can be used as the AT commands or data stream channel Support RTS/CTS hardware handshake Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD Support SD Cards with 3.3 V on SD port  USB USB2.0 high speed interface  Certification CE,ROHS,REACH,GCF∗  Firmware upgrade Firmware upgrade over USB interface  Normal operation temperature: -40°C ~ +75°C  Temperature range Extended operation temperature: -40°C ~ +85°C		GNSS engine (GPS, GLONASS and GALILEO)
MT, MO, CB, Text and PDU mode  SMS Storage: USIM card or ME(default) Transmission of SMS alternatively over CS or PS.  USIM interface Support identity card: 1.8 V / 3 V  USIM application toolkit Support SAT class 3, GSM 11.14 Release 98 Support USAT  Phonebook management Support phonebook types: DC,MC,RC,SM,ME,FD,ON,LD,EN  Audio feature Only support PCM interface Only support PCM master mode and short frame sync, 16-bit linear data formats  Main UART: A full modem serial port by default Baud rate: 9600 bps to 3.6Mbps (default:115200 bps) Can be used as the AT commands or data stream channel Support RTS/CTS hardware handshake Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD Support SD Cards with 3.3 V on SD port  USB USB2.0 high speed interface  Certification CE,ROHS,REACH,GCF*  Firmware upgrade Firmware upgrade over USB interface  Normal operation temperature: -40°C ~ +75°C  Temperature range Extended operation temperature: -40°C ~ +85°C	ВТ	Support Bluetooth 4.2/BLE
SMS storage: USIM card or ME(default) Transmission of SMS alternatively over CS or PS.  USIM interface Support identity card: 1.8 V / 3 V  USIM application toolkit Support SAT class 3, GSM 11.14 Release 98 Support USAT  Phonebook management Support phonebook types: DC,MC,RC,SM,ME,FD,ON,LD,EN  Support PCM interface Only support PCM master mode and short frame sync, 16-bit linear data formats  Main UART: A full modem serial port by default Baud rate: 9600 bps to 3.6Mbps (default:115200 bps) Can be used as the AT commands or data stream channel Support RTS/CTS hardware handshake Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD Support SD Cards with 3.3 V on SD port  USB USB2.0 high speed interface  Certification CE,ROHS,REACH,GCF*  Firmware upgrade Firmware upgrade over USB interface Normal operation temperature: -30°C ~ +75°C  Temperature range Extended operation temperature: -40°C ~ +85°C	WiFi Scan	Support WiFi scan
Transmission of SMS alternatively over CS or PS.  USIM interface Support identity card: 1.8 V / 3 V  Support SAT class 3, GSM 11.14 Release 98 Support USAT  Phonebook management Support phonebook types: DC,MC,RC,SM,ME,FD,ON,LD,EN  Audio feature Only support PCM interface Only support PCM master mode and short frame sync, 16-bit linear data formats  Main UART: A full modem serial port by default Baud rate: 9600 bps to 3.6Mbps (default:115200 bps) Can be used as the AT commands or data stream channel Support RTS/CTS hardware handshake Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD Support SD Cards with 3.3 V on SD port  USB USB2.0 high speed interface  Certification CE,ROHS,REACH,GCF*  Firmware upgrade Firmware upgrade over USB interface  Normal operation temperature: -40°C ~ +75°C  Temperature range Extended operation temperature: -40°C ~ +85°C	SMS	MT, MO, CB, Text and PDU mode
USIM interface  Support identity card: 1.8 V / 3 V  Support SAT class 3, GSM 11.14 Release 98 Support USAT  Phonebook management  Support phonebook types: DC,MC,RC,SM,ME,FD,ON,LD,EN  Support PCM interface Only support PCM master mode and short frame sync, 16-bit linear data formats  Main UART: A full modem serial port by default Baud rate: 9600 bps to 3.6Mbps (default:115200 bps) Can be used as the AT commands or data stream channel Support RTS/CTS hardware handshake Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD  Support SD Cards with 3.3 V on SD port  USB  USB2.0 high speed interface  Certification  CE,ROHS,REACH,GCF*  Firmware upgrade  Firmware upgrade  Normal operation temperature: -40°C ~ +75°C  Temperature range  Extended operation temperature: -40°C ~ +85°C		SMS storage: USIM card or ME(default)
USIM application toolkit  Support SAT class 3, GSM 11.14 Release 98 Support USAT  Phonebook management  Support phonebook types: DC,MC,RC,SM,ME,FD,ON,LD,EN  Support PCM interface Only support PCM master mode and short frame sync, 16-bit linear data formats  Main UART: A full modem serial port by default Baud rate: 9600 bps to 3.6Mbps (default:115200 bps) Can be used as the AT commands or data stream channel Support RTS/CTS hardware handshake Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD Support SD Cards with 3.3 V on SD port  USB USB2.0 high speed interface  Certification CE,ROHS,REACH,GCF*  Firmware upgrade Firmware upgrade over USB interface  Normal operation temperature: -30°C ~ +75°C  Temperature range Extended operation temperature: -40°C ~ +85°C		Transmission of SMS alternatively over CS or PS.
USIM application toolkit       Support USAT         Phonebook management       Support phonebook types: DC,MC,RC,SM,ME,FD,ON,LD,EN         Audio feature       Support PCM interface Only support PCM master mode and short frame sync, 16-bit linear data formats         Main UART: A full modem serial port by default Baud rate: 9600 bps to 3.6Mbps (default:115200 bps) Can be used as the AT commands or data stream channel Support RTS/CTS hardware handshake Multiplex ability according to GSM 07.10 Multiplexer Protocol         SD       Support SD Cards with 3.3 V on SD port         USB       USB2.0 high speed interface         Certification       CE,ROHS,REACH,GCF*         Firmware upgrade       Firmware upgrade over USB interface         Normal operation temperature: -30°C ~ +75°C         Temperature range       Extended operation temperature: -40°C ~ +85°C	USIM interface	Support identity card: 1.8 V / 3 V
Phonebook management Support phonebook types: DC,MC,RC,SM,ME,FD,ON,LD,EN  Support PCM interface Only support PCM master mode and short frame sync, 16-bit linear data formats  Main UART: A full modem serial port by default Baud rate: 9600 bps to 3.6Mbps (default:115200 bps) Can be used as the AT commands or data stream channel Support RTS/CTS hardware handshake Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD Support SD Cards with 3.3 V on SD port  USB USB2.0 high speed interface Certification CE,ROHS,REACH,GCF* Firmware upgrade Firmware upgrade over USB interface Normal operation temperature: -30°C ~ +75°C Temperature range Extended operation temperature: -40°C ~ +85°C	USIM application toolkit	Support SAT class 3, GSM 11.14 Release 98
Support PCM interface Only support PCM master mode and short frame sync, 16-bit linear data formats  Main UART: A full modem serial port by default Baud rate: 9600 bps to 3.6Mbps (default:115200 bps) Can be used as the AT commands or data stream channel Support RTS/CTS hardware handshake Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD Support SD Cards with 3.3 V on SD port  USB USB2.0 high speed interface Certification CE,ROHS,REACH,GCF*  Firmware upgrade Firmware upgrade over USB interface Normal operation temperature: -30°C ~ +75°C  Temperature range Extended operation temperature: -40°C ~ +85°C		Support USAT
Audio feature  Only support PCM master mode and short frame sync, 16-bit linear data formats  Main UART:  A full modem serial port by default  Baud rate: 9600 bps to 3.6Mbps (default:115200 bps)  Can be used as the AT commands or data stream channel  Support RTS/CTS hardware handshake  Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD  Support SD Cards with 3.3 V on SD port  USB  USB2.0 high speed interface  Certification  CE,ROHS,REACH,GCF*  Firmware upgrade  Firmware upgrade over USB interface  Normal operation temperature: -30°C ~ +75°C  Temperature range  Extended operation temperature: -40°C ~ +85°C	Phonebook management	Support phonebook types: DC,MC,RC,SM,ME,FD,ON,LD,EN
Main UART:  A full modem serial port by default  Baud rate: 9600 bps to 3.6Mbps (default:115200 bps)  Can be used as the AT commands or data stream channel  Support RTS/CTS hardware handshake  Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD  Support SD Cards with 3.3 V on SD port  USB  USB2.0 high speed interface  Certification  CE,ROHS,REACH,GCF*  Firmware upgrade  Firmware upgrade over USB interface  Normal operation temperature: -30°C ~ +75°C  Temperature range  Extended operation temperature: -40°C ~ +85°C	Audio feature	Support PCM interface
UART interfaces  A full modem serial port by default  Baud rate: 9600 bps to 3.6Mbps (default:115200 bps)  Can be used as the AT commands or data stream channel  Support RTS/CTS hardware handshake  Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD  Support SD Cards with 3.3 V on SD port  USB  USB2.0 high speed interface  Certification  CE,ROHS,REACH,GCF*  Firmware upgrade  Firmware upgrade over USB interface  Normal operation temperature: -30°C ~ +75°C  Temperature range  Extended operation temperature: -40°C ~ +85°C		Only support PCM master mode and short frame sync, 16-bit linear data formats
Baud rate: 9600 bps to 3.6Mbps (default:115200 bps)  Can be used as the AT commands or data stream channel Support RTS/CTS hardware handshake Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD Support SD Cards with 3.3 V on SD port  USB USB2.0 high speed interface  Certification CE,ROHS,REACH,GCF★  Firmware upgrade Firmware upgrade over USB interface  Normal operation temperature: -30°C ~ +75°C  Temperature range Extended operation temperature: -40°C ~ +85°C	UART interfaces	Main UART:
Can be used as the AT commands or data stream channel Support RTS/CTS hardware handshake Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD Support SD Cards with 3.3 V on SD port  USB USB2.0 high speed interface  Certification CE,ROHS,REACH,GCF*  Firmware upgrade Firmware upgrade over USB interface  Normal operation temperature: -30°C ~ +75°C  Temperature range Extended operation temperature: -40°C ~ +85°C		A full modem serial port by default
Support RTS/CTS hardware handshake Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD Support SD Cards with 3.3 V on SD port  USB USB2.0 high speed interface  Certification CE,ROHS,REACH,GCF*  Firmware upgrade Firmware upgrade over USB interface  Normal operation temperature: -30°C ~ +75°C  Temperature range Extended operation temperature: -40°C ~ +85°C		Baud rate: 9600 bps to 3.6Mbps (default:115200 bps)
Multiplex ability according to GSM 07.10 Multiplexer Protocol  SD Support SD Cards with 3.3 V on SD port  USB USB2.0 high speed interface  Certification CE,ROHS,REACH,GCF*  Firmware upgrade Firmware upgrade over USB interface  Normal operation temperature: -30°C ~ +75°C  Temperature range Extended operation temperature: -40°C ~ +85°C		Can be used as the AT commands or data stream channel
Support SD Cards with 3.3 V on SD port  USB  USB2.0 high speed interface  Certification  CE,ROHS,REACH,GCF*  Firmware upgrade  Firmware upgrade over USB interface  Normal operation temperature: -30°C ~ +75°C  Temperature range  Extended operation temperature: -40°C ~ +85°C		Support RTS/CTS hardware handshake
USB 2.0 high speed interface  Certification CE,ROHS,REACH,GCF*  Firmware upgrade Firmware upgrade over USB interface  Normal operation temperature: -30°C ~ +75°C  Temperature range Extended operation temperature: -40°C ~ +85°C		Multiplex ability according to GSM 07.10 Multiplexer Protocol
Certification       CE,ROHS,REACH,GCF*         Firmware upgrade       Firmware upgrade over USB interface         Normal operation temperature: -30°C ~ +75°C         Temperature range       Extended operation temperature: -40°C ~ +85°C	SD	Support SD Cards with 3.3 V on SD port
Firmware upgrade  Firmware upgrade over USB interface  Normal operation temperature: -30°C ~ +75°C  Temperature range  Extended operation temperature: -40°C ~ +85°C	USB	USB2.0 high speed interface
Normal operation temperature: $-30^{\circ}\text{C} \sim +75^{\circ}\text{C}$ Temperature range Extended operation temperature: $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$	Certification	CE,ROHS,REACH,GCF*
Temperature range Extended operation temperature: -40°C ~ +85°C	Firmware upgrade	Firmware upgrade over USB interface
· · · · · · · · · · · · · · · · · · ·		Normal operation temperature: -30°C ~ +75°C
Storage temperature -40°C ∼ +90°C	Temperature range	Extended operation temperature: $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
		Storage temperature -40°C ~ +90°C

<sup>\*-</sup> On going

AMPHENOL 2