



# Lena family: PCI Express MiniCard Data Module

## Product Description:

The new generation of Lena series is designed for M2M applications in partnership with Gemalto M2M, the worldwide leading supplier of wireless modules for the cellular machine-to-machine (M2M) communication market. This series of devices is based on the miniPCI Express Mini Card standard with a USB 2.0 interface. With a variety of advanced air interfaces supported, Lena series enables any mobile computing device to be a communication tool! It comes two product families: Lena\_M & Lena\_X.



## Key Features:

- Worldwide band coverage
- Spans all technologies: GSM/GPRS/EDGE, HSPA+, EVDO+ HSPA, EVDO, LTE
- Supports the following OS: Windows®8, Windows®7, Linux, Android
- SIM card holder for M2M and vertical applications

## Specifications:

- **Air Interface:**
  - GSM/GPRS/EDGE
  - WCDMA/UMTS/HSPA
  - CDMA2000 EV-DO Rev. A
  - LTE FDD
- **Antenna Diversity:**
  - Diversity supported
- **Connectors:**
  - Antenna: U. FL 50 Ohm for 2G/3G
  - Main Connector: 52-Pin Edge
  - Mini-SIM card connector (Option)
- **Interface:**
  - USB 2.0
  - USIM/SIM
  - W\_Disable, Wake and LED WWAN signals
  - UART
  - Reset
- **Dimension**
  - Full size form factor
  - 51.0 mm (L) × 30.0 mm (W) × 4.75 mm (H)
- **Weight**
  - < 6g
- **Electrical data**
  - DC Power supply : 3.0~3.6V
- **Environmental :**
  - Operation Temperature : -30°C to +85°C (board temperature)
  - Storage Temperature : -40°C to +85°C
- **GPS ( LTE SKU ready in Rel2 version)**
  - Standalone GPS and GLONASS
  - GNSS dedicated AT commands
  - A/GPS support: standalone, XTRA®, CP E911
  - Protocol: NMEA-0183 V2.3

## Applications:

- Wireless terminal
- Fleet management
- Tracking
- Utility metering
- In-Vehicle infotainment

## Support & Service:

- Evaluation board are available
- Connection Manager
- RIL support

## High Level Specification

miniPCI Express Data Card: Lena_M (LM)					
<b>Product Name</b>	LM_PH	LM_PX	LM_PV	LM_LE	LM_LU
<b>Gemalto PN</b>	PHS8-P	PXS	PVS	PLS-E	PLS-US
<b>Air Interface</b>	HSPA+	HSPA+/EV-DO Rev A	EV-DO Rev. A	LTE (Europe)	LTE (America)
<b>Data Speed</b>	DL: 14.4 Mbps UL: 5.76 Mbps	DL: 14.4 Mbps UL: 5.76 Mbps	DL: 3.1 Mbps UL: 1.8 Mbps	DL: 100 Mbps UL: 50 Mbps	DL: 100 Mbps UL: 50 Mbps
Frequency band (MHz)					
<b>GSM/GPRS/EDGE</b>	850/900/1800/1900	850/900/1800/1900		900/1800	850/900/1800/1900
<b>HSPA+/UMTS</b>	800/850/900/1900/ 2100	800/850/900/1900/ 2100		900/1800/2100	850/AWS(1700/2100 ) /1900
<b>CDMAx1 RTT/ EV-Do Rev A</b>		800 (BC0) /1900 (BC1) & 800 (BC10 subclass 2+3)	800 (BC0) /1900 (BC1) & 800 (BC10 subclass 2+3)		
<b>FDD-LTE</b>				800/900/1800/2600	700/850/AWS(1700/ 2100)/1900
Antenna					
<b>Connector</b>	50 Ohms	50 Ohms	50 Ohms	50 Ohms	50 Ohms
<b>Diversity</b>	✓, UMTS	✓, UMTS/CDMA	✓, CDMA	✓, UMTS/LTE	✓, UMTS/LTE
<b>MIMO</b>				2x2	2x2
<b>GNSS(* (Option)</b>	Standalone GPS and GLONASS Active/Passive GNSS dedicated AT commands A/GPS support: standalone, XTRA®, CP E911 Protocol: NMEA-0183 V2.3 Option for temporary NMEA stream buffering				
<b>SIM card holder</b>	Option	Option		Option	Option
<b>Control options</b>	AT command	AT command	AT command	AT command	AT command
<b>OS compatibility</b>	<i>Windows®8, Windows®7, Windows EC, Linux, Android</i>				

(\*: For LTE module, the function is only ready for rel2 version. The rel2 schedule will be upon the solution provider's schedule.

### Ordering information

Please email to [innocomm@innocomm.com](mailto:innocomm@innocomm.com) or call +886-3-5781868 for more information.

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