

## DINGO GSM/4G Europe Modem Module

DATASHEET COMPLETE

### Item specifications

Go-IoT Item Id:	DINGO-PG-GSM_4G-Europe
GSM	Quectel UG91-E <a href="http://www.quectel.com/product/ug91.htm">http://www.quectel.com/product/ug91.htm</a>
LTE FDD	B1/B3/B7/B8/B20/B28
WCDMA	B1 / B8
GSM/EDGE	B3 / B8
Protocol	TCP/UDP/PPP/FTP/HTTP/NTP/PING/QMI/ NITZ
Maximum Data Rate	LTE FDD: Max 10Mbps (DL)/Max 5Mbps (UL) EDGE: Max 296Kbps (DL)/Max 236.8Kbps (UL) GPRS: Max 107Kbps (DL)/Max 85.6Kbps (UL)
Carrier	All European
Certification	GCF/ FCC/ PTCRB/ IC
USB Interface	1
Serial TTL Interface	1 (not used)
SIMM Card Connector	1 or eSIM (MOQ - 100)
Indicators	Network Status LED Power ON / OFF Status LED
Antenna Connectors	SMA (option) U-FL (standard)
Drivers	Linux / Windows / QMI_WWAN
Expansion Connectors	1 x 20way header from Base Board
DC Input	+5V
Temperature	-20 degree C to +85 degree C
Size (L x W x H)	58mm x 40mm x 8mm
Country/Region of Manufacture:	EU



**Variants for EMEA**
**EG91-E:**

LTE FDD: B1/B3/B7/B8/B20/B28A

WCDMA: B1/B8

GSM: B3/B8

**EG91-EX<sup>①</sup>:**

LTE FDD: B1/B3/B7/B8/B20/B28

WCDMA: B1/B8

GSM: B3/B8

**Variants for North America**
**EG91-NA:**

LTE FDD: B2/B4/B5/B12/B13

WCDMA: B2/B4/B5

**EG91-NS:**

LTE FDD: B2/B4/B5/B12/B13/B25/B26

WCDMA: B2/B4/B5

**EG91-VX<sup>①</sup>:**

LTE FDD: B4/B13

**Data**
**LTE:**

LTE FDD: Max 10Mbps (DL)/Max 5Mbps (UL)

**UMTS:**

DC-HSDPA: Max 42Mbps (DL)

HSUPA: Max 5.76Mbps (UL)

WCDMA: Max 384Kbps (DL)/Max 384Kbps (UL)

**GSM:**

EDGE: Max 296Kbps (DL)/Max 236.8Kbps (UL)

GPRS: Max 107Kbps (DL)/Max 85.6Kbps (UL)

**Voice**
**Speech Codec Modes:**

HR/FR/EFR/AMR/AMR-WB

**Echo Arithmetic:**

Echo Cancellation/Noise Suppression

**VoLTE:**

Digital Audio and VoLTE (Voice over LTE)

(Optional)

**Interfaces**

USB 2.0 with High Speed up to 480Mbps

Digital Audio through PCM (Optional)

1.8V/3.0V (U)SIM Interfaces × 2

NETLIGHT × 1

UART × 2 (Main UART and Debug UART)

RESET\_N

PWRKEY

SP1 × 1

Main/Rx-diversity Antenna Interfaces

GNSS Antenna Interface (For EG91-NA/-NS/-VX/

-EX Only)

USB\_BOOT × 1

**Enhanced Features**

eCall\*

(U)SIM Card Detection

**DFOTA\*:**

Delta Firmware Upgrade Over-The-Air

**GNSS (For EG91-NA/-NS/-VX/-EX Only)**

(Optional):

GPS/GLONASS/BeiDou/Galileo/QZSS

**Electrical Characteristics**
**Output Power:**

Class 3 (23dBm±2dB) for LTE FDD bands

Class 3 (24dBm+1/-3dB) for WCDMA bands

Class 4 (33dBm±2dB) for EGSM900

Class 1 (30dBm±2dB) for DCS1800

Class E2 (27dBm±3dB) for EGSM900 8-PSK

Class E2 (26dBm±3dB) for DCS1800 8-PSK

**Consumption:**

13uA @Power off

2.6mA @Sleep, Typ.

29mA @Idle, Typ.

**Sensitivity:**

LTE FDD B1: -101.4dBm (10M)

LTE FDD B2: -102.1dBm (10M)

LTE FDD B3: -101.5dBm (10M)

LTE FDD B4: -102.1dBm (10M)

LTE FDD B5: -103.1dBm (10M)

LTE FDD B7: -101.3dBm (10M)

LTE FDD B8: -101.2dBm (10M)

LTE FDD B12: -102.5dBm (10M)

LTE FDD B13: -102.5dBm (10M)

LTE FDD B20: -101.3dBm (10M)

LTE FDD B25: -102.2dBm (10M)

LTE FDD B26: -102.7dBm (10M)

LTE FDD B28A: -101.4dBm (10M)

WCDMA B1: -109.5dBm

WCDMA B2: -110dBm

WCDMA B4: -110dBm

WCDMA B5: -110.5dBm

WCDMA B8: -109.5dBm

EGSM900: -108.6dBm

DCS1800: -109.4dBm

**Software Features**
**USB Serial Driver:**

Windows 7/8/8.1/10, Windows CE 5.0/6.0/7.0\*,

Linux 2.6/3.x/4.1~4.14,

Android 4.x/5.x/6.x/7.x/8.x/9.x

**RIL Driver:**

Android 4.x/5.x/6.x/7.x/8.x/9.x

**NDIS Driver:**

Windows 7/8/8.1/10

**ECM Driver\*:**

Linux 2.6/3.x/4.1~4.14

**Gobinet Driver:**

Linux 2.6/3.x/4.1~4.14

**QMI\_WWAN Driver:**

Linux 3.x (3.4 or later)/4.1~4.14

**Protocols:**

TCP/UDP/PPP/FTP/HTTP/NTP/PING/QMI/ NITZ/

CMUX\*/HTTPS\*/SMTP\*/MMS\*/FTPS\*/SMTPS\*/

SSL\*/FILE\*

**General Features**

Temperature Range: -40°C ~ +85°C

Dimensions: 29.0mm x 25.0mm x 2.3mm

Weight: Approx. 3.8g

LGA Package

Rx-diversity Antenna

Supply Voltage: 3.3V~4.3V, 3.8V Typ.

3GPP E-UTRA Release 11

Bandwidth: 1.4/3/5/10/15/20MHz

3GPP TS 27.007, 27.005 and Quectel Enhanced

AT Commands

**Approvals<sup>②</sup>**
**Carrier:**

Deutsche Telekom (Europe)

Verizon/AT&T/T-Mobile/Sprint\* (North America)

Telus/Rogers\* (Canada)

**Regulatory:**

GCF (Global)

CE (Europe)

FCC/PTCRB (North America)

IC (Canada)

RCM (Australia & New Zealand)

FAC (Russia)

**Others:**

RoHS Compliant

WHQL

\* Under Development.

① EG91-EX/-VX are based on ThreadX OS.

② Certification status are different among different variants of EG91 module.

## 20WAY GSM Interface

Pin	Port	Dir	Pull Up	Function	Description
1	+12V			POWER	
2	SPI_CLK	IN		SPI	SPI Clock
3	+3.3V			POWER	
4	SPI_MOSI	IN		SPI	SPI Master Out SLAVE In
5	TXD2	IN		Serial TX Data	Serial TTL Data from Host – Channel 2
6	SPI_MISO	IN		SPI	SPI Master In SLAVE Out
7	RXD2	OUT		Serial RX Data	Serial TTL Data to Host – Channel 2
8	SPI_SSx	OUT		SPI	Output from Power Line Module
9	NEVENTx	OUT		Power Line	SPI Slave Select
10	TXD3	IN		Serial TX Data	Serial TTL Data from Host – Channel 3
11	GND			POWER	
12	RXD3	OUT		Serial TX Data	Serial TTL Data to Host – Channel 3
13	ADDR1			IO	Module Specific
14	I2C_SCL	IN		I2C CLOCK	I2C – Channel 1 Clock
15	ADDR1			IO	Module Specific
16	I2C_SDA	BI		I2C DATA	I2C – Channel 1 Data
17	GPIOx	BI		IO	Module Specific
18	USB +	BI		USB Data	USB Positive Channel x
19	+5.0V	IN		POWER	+5.0V Output – 1000mA available
20	USB -	BI		USB Data	USB Negative Channel x

**x = Channel / Number depend on location on Base Board**

**Blue Text is signals used on Module**