



GLYN
High-Tech Distribution

HARDWARE REFERENCE MANUAL

GFF910

A TELIT xE910 CELLULAR MODULE ON A PLUGABLE INTERFACE BOARD



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Revision 2.0

| Revision | Date | Notes |
|----------|------------|--|
| 1.0 | 22/11/2012 | Initial release |
| 1.1 | 08/04/2014 | Update to current production settings |
| 1.2 | 28/04/2014 | Change colour coding for function shared pin 63 |
| 1.3 | 28/01/2015 | Fixed data sheet, highest IO level is VBATT, not 5V |
| 1.4 | 02/02/2015 | RF connector description changed |
| 1.5 | 21/05/2015 | Updated part number description |
| 1.6 | 09/07/2015 | Updated top view for new PCB revision |
| 1.7 | 30/07/2015 | Add option in part number to order with Diversity antenna |
| 1.8 | 18/03/2016 | Remove GSC connector offering due to EOL. Change Diversity option to DIV in part number section, added LE910 V2 & LE910 Cat1 options |
| 1.9 | 26/07/2017 | Updated part numbering system, added new ME910, LE910, and UE910 options, changed u.FL active connector part number |
| 2.0 | 27/07/2018 | Updated layout, small description changes |

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1 Introduction

The GFF910 module has been designed to allow the user ease of use with plug & play options available for all current cellular technologies, including, LTE, GSM, UMTS, HSPA, and CDMA.

With plug & play options via the Glyn GFF(Global Form Factor) carrier board, the entire range of Telit xE910 family is supported. Options such as GPS and Voice can easily be fulfilled on supported modules without the need for you to re-work or re-design your board.

In most cases, your design needs to provide flexibility depending on which region the product is to be deployed and/or certified. The GFF carrier board takes the guess work out of this decision.

By providing the 80-Way connector, the GFF board interface allows the user the option to mount the module which best fits each and every application of their product, no matter where it is rolled out world wide.

Full electrical and software (AT Command) compatibility is maintained between each module type, be it, LTE Cat-1(LE910C1-AP), Cat-M1(ME910C1-AU), HSPA+(HE910-DG), or GSM(GE910-QUAD).

2 Mechanical Specifications

2.1 Dimensions

GFF module physical size - 36.2 x 30 x 5.6mm

2.2 Socket Types

2.2.1 80-Way Plug Specifications

Manufacturer: Molex Inc.
Part Number: 0539490878

2.2.2 80-Way Socket Specifications

Manufacturer: Molex Inc.
Part Number: 0541500878

2.2.3 U.FL Connector

Manufacturer: Attend
Part Number: 321-33125
(Same specifications as Hirose Electric Co Ltd., P/N: U.FL-R-SMT-1(10))

3 Hardware Specifications

3.1 Pinout

| Pin | Name | I/O | Function | Range | Notes |
|-----|-----------|-----|-----------|-----------|------------------------|
| 1 | VBAT | * | Supply | 3.4-4.2V | Supply |
| 2 | VBAT | * | Supply | 3.4-4.2V | Supply |
| 3 | VBAT | * | Supply | 3.4-4.2V | Supply |
| 4 | VBAT | * | Supply | 3.4-4.2V | Supply |
| 5 | GND | * | Ground | * | |
| 6 | GND | * | Ground | * | |
| 7 | GND | * | Ground | * | |
| 8 | * | * | * | * | |
| 9 | NC | * | * | EAR+ | Analog audio |
| 10 | NC | * | * | EAR- | Analog audio |
| 11 | * | * | * | * | |
| 12 | * | * | * | * | |
| 13 | NC | * | * | MIC+ | Analog audio |
| 14 | NC | * | * | MIC- | Analog audio |
| 15 | * | * | * | * | |
| 16 | * | * | * | * | |
| 17 | * | * | * | * | |
| 18 | SIMVCC | * | SIM | 1.8V/3V | SIM Interface |
| 19 | SIMRST | O | SIM | 1.8V/3V | SIM Interface |
| 20 | SIMIO | IO | SIM | 1.8V/3V | SIM Interface |
| 21 | SIMIN | I | SIM | CMOS 1.8V | SIM Interface |
| 22 | SIMCLK | O | SIM | 1.8V/3V | SIM Interface |
| 23 | RX_TRACE | IO | Trace | CMOS 2.8V | Shared with SPI_RX |
| 24 | TX_TRACE | IO | Trace | CMOS 2.8V | Shared with SPI_TX |
| 25 | C103/TXD | I | Flow Ctrl | CMOS 2.8V | Serial data in DTE |
| 26 | C104/RXD | O | Flow Ctrl | CMOS 2.8V | Serial data out DTE |
| 27 | C107/DSR | O | Flow Ctrl | CMOS 2.8V | DSR Signal |
| 28 | C106/CTS | O | Flow Ctrl | CMOS 2.8V | CTS Signal |
| 29 | C108/DTR | I | Flow Ctrl | CMOS 2.8V | DTR Signal |
| 30 | C125/RING | O | Flow Ctrl | CMOS 2.8V | RING Signal |

| | | | | | |
|----|----------|----|---------------|-----------|----------------------|
| 31 | C105/RTS | I | Flow Ctrl | CMOS 2.8V | RTS Signal |
| 32 | C109/DCD | O | Flow Ctrl | CMOS 2.8V | DCD Signal |
| 33 | * | * | * | * | |
| 34 | * | * | * | * | |
| 35 | * | * | * | * | |
| 36 | DVLCLK | IO | Digital Audio | CMOS 2.8V | Digital audio CLK |
| 37 | ADC_IN1 | AI | Analog In | 0-2.8V | Only on C/HE910 |
| 38 | * | * | * | * | |
| 39 | * | * | * | * | |
| 40 | * | * | * | * | |
| 41 | SPLMRDY | IO | SPI | CMOS 2.8V | Only on HE910 |
| 42 | SPLSRDY | IO | SPI | CMOS 2.8V | Only on HE910 |
| 43 | SPLCLK | IO | SPI | CMOS 2.8V | Only on HE910 |
| 44 | SPLCS_N | IO | SPI | CMOS 2.8V | Only on C/DE910 |
| 45 | STAT_LED | O | Indicator | CMOS 2.8V | Share GPIO1 |
| 46 | GND | * | * | * | |
| 47 | * | * | * | * | |
| 48 | USB_VBUS | I | USB | 5V | USB Interface |
| 49 | PWRMON | O | Supply output | CMOS 2.8V | |
| 50 | VAUX | O | Supply output | CMOS 2.8V | Max 50mA |
| 51 | * | * | * | * | |
| 52 | * | * | * | * | |
| 53 | ON/OFF | I | Misc | CMOS 1.8V | Active low |
| 54 | RESET | I | Misc | CMOS 1.8V | Active low |
| 55 | VRTC | I | Misc | Power | Backup RTC |
| 56 | * | * | * | * | |
| 57 | * | * | * | * | |
| 58 | * | * | * | * | |
| 59 | GPIO_04 | IO | GPIO | CMOS 2.8V | |
| 60 | * | * | * | * | |
| 61 | * | * | * | * | |
| 62 | * | * | * | * | |
| 63 | GPIO_10 | IO | GPIO | CMOS 2.8V | Option DVL_TX |
| 64 | * | * | * | * | |

| | | | | | |
|----|---------|----|---------------|-----------|--------------------|
| 65 | DVI_TX | IO | Digital Audio | CMOS 2.8V | |
| 66 | GPIO_03 | IO | GPIO | CMOS 2.8V | |
| 67 | GPIO_08 | IO | GPIO | CMOS 2.8V | |
| 68 | GPIO_06 | IO | GPIO | CMOS 2.8V | |
| 69 | * | * | * | * | |
| 70 | GPIO_01 | IO | GPIO | CMOS 2.8V | Share STAT_LED |
| 71 | DVL_WA0 | IO | Digital Audio | CMOS 2.8V | |
| 72 | * | * | * | * | |
| 73 | GPIO_07 | IO | GPIO | CMOS 2.8V | |
| 74 | GPIO_02 | IO | GPIO | CMOS 2.8V | |
| 75 | * | * | * | * | |
| 76 | GPIO_09 | IO | GPIO | CMOS 2.8V | |
| 77 | * | * | * | * | |
| 78 | GPIO_05 | IO | GPIO | CMOS 2.8V | |
| 79 | USB_D+ | IO | USB | * | Differential Data+ |
| 80 | USB_D- | IO | USB | * | Differential Data- |

Notes:

11.

| Colour Coding | Notes |
|---------------|--|
| | 100% compatible with UC864-G. GFF910 is drop-in replaceable |
| | Function shared pins. Pins 45/70 are coming out from GPIO_01 on xE910 via different level translators. Pin 63 can be configured as DVI_TX as option if digital voice is required |
| | Directly from xE910. Refer to relevant Telit xE910 user manual for more details |
| | Special function pins only available of some xE910 modules |
| | Analog audio pins. Not available on all xE910 modules. Refer to relevant Telit xE910 user manual for more details |

13.

If unused, pins can be left disconnected. With the exception of the following:

| Pin | Name | Function |
|-----|----------|---|
| 1 | VBATT | Main Power Supply |
| 2 | VBATT | Main Power Supply |
| 3 | VBATT | Main Power Supply |
| 4 | VBATT | Main Power Supply |
| 5 | GND | Ground |
| 6 | GND | Ground |
| 7 | GND | Ground |
| 46 | GND | Ground |
| 25 | C103/TXD | Serial data input from DTE (TXD) |
| 26 | C104/RXD | Serial data output to DTE (RXD) |
| 31 | C105/RTS | Input for request to send signal from DTE (RTS) |
| 53 | ON/OFF | Input command for switching ON or OFF(toggle command) |
| 54 | RESET | Reset input |

3.2 Antenna Connectors

The GFF910 module is equipped with a 50 Ohm RF connector from At-tend, P/N: 321A-33125, for Cellular, Diversity (where applicable), and GNSS (where applicable) antenna connections. These connectors are located on top side (Cellular and Diversity) and bottom side (GNSS).

Interface cables with various configurations are available from Glyn, to suit your needs: Glynstore Interface Cable Range

3.3 Hardware Commands

Please see the relevant Telit xE910 Hardware user guide for more details. The document can be found at Telit website.

3.4 Power Supply

GFF910 interface supports 3.3-4.2V.

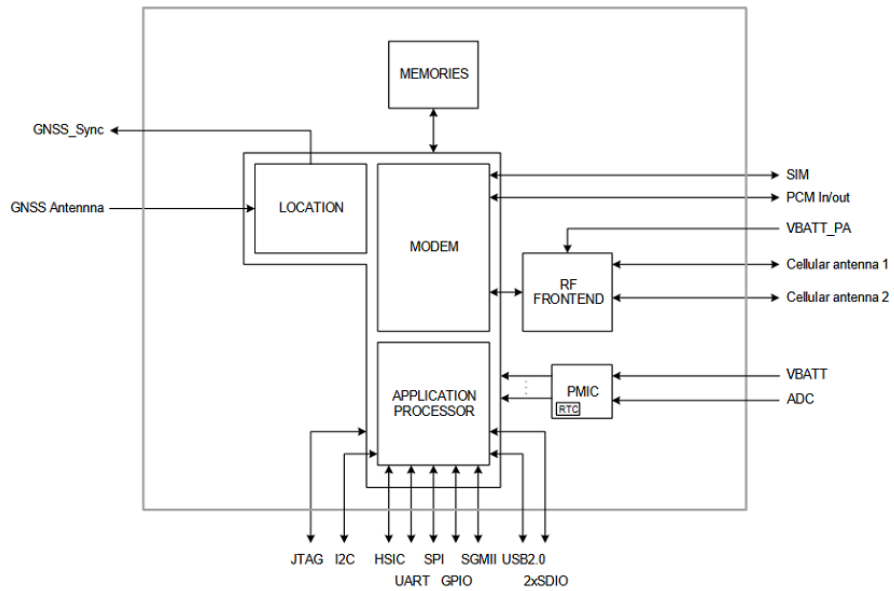
Please see the relevant Telit xE910 Hardware user guide for recommended power supply requirements for new designs. The document can be found at Telit website.

3.5 Power Consumption

Please see the relevant Telit xE910 Hardware user guide for recommended power supply requirements for new designs. The document can be found at Telit website.

3.6 Block Diagram

Block Diagram of LE910C1-AP



3.7 Recommended Module Summary

| Part Number | Region | Technologies | Band Support | GPS |
|-------------|---------------------------------|------------------------------------|--|-------------------|
| GE910-QUAD | Global(2G Only) | 2.5G | 850, 900, 1800, 1900 MHz | No |
| HE910-D | Global | 3G | 800/850, 900, AWS1700, 1900, 2100 | No |
| HE910-DG | Global | 3G | 800/850, 900, AWS1700, 1900, 2100 | Embedded |
| HE910-EUD | EMEA/ APAC/ Latin America | 3G | 800/850, 900, 2100 | No |
| HE910-EUG | EMEA/ APAC/ Latin America | 3G | 800/850, 900, 2100 | Embedded |
| LE910C1-AP | APAC/ANZ | 4G(3G Fall-back) | B1, B3, B5, B8, B28 (850, 900, 2100) | Embedded |
| ME910C1-AU | Australia | Dual Cat1 & NB1 4G | B3, B5, B8, B28 | Optional Embedded |
| ME910C1-WW | Worldwide | Dual Cat M1 & NB1 4G(2G fall-back) | B1, B2, B3, B4, B5, B8, B12, B13, B18, B19, B20, B26, B28, B39(850, 900, 1800, 1900) | Optional Embedded |