

GV850/GV851 Hardware Specification

Revision: R1.00

International Telematics Solutions Innovator

www.queclink.com

General Notes

Queclink offers this information as a service to its customers, to support application and engineering efforts that use the products designed by Queclink. The information provided is based upon requirements specifically provided to Queclink by the customers. Queclink has not undertaken any independent search for additional relevant information, including any information that may be in the customer's possession. Furthermore, system validation of this product designed by Queclink within a larger electronic system remains the responsibility of the customer or the customer's system integrator. All specifications supplied herein are subject to change.

Copyright

This document contains proprietary technical information which is the property Queclink Wireless Solutions Co., Ltd. The copying of this document, distribution to others, and communication of the contents thereof, are forbidden without express authority. Offenders are liable to the payment of damages. All rights are reserved in the event of a patent grant or registration of a utility model or design. All specifications supplied herein are subject to change without notice at any time.

Copyright © Shanghai Queclink Wireless Solutions Co.,Ltd. 2025

Contents

0. Version History 4

1. General Description 4

2. Key Features 5

4. Interface Description 9

5. Technical Parameters 15

6. FCC Compliance Statement and Caution 17

0. Version History

Revision	Date	Author	Description of Updating
1.00	2025-09-01	Super.chen	First Draft Version

1. General Description

This is a customized project which is based on GV850/GV851 requirements.

Item	Model	Description	Description	Region	Plan
1	GV850CNA	EG915Q-NA	Cat1-BIS	LTE-FDD:B2/B4/B5/B12/B13/B66	Formula CAN
2	GV851CNA	EG915Q-NA	Cat1-BIS	LTE-FDD:B2/B4/B5/B12/B13/B66	Open CAN
3	GV850CEU	EG915U-EC	Cat1-BIS	LTE-FDD:B1/B3/B5/B7/B8/B20 GSM:850/900/1800/1900 MHz	Formula CAN
4	GV851CEU	EG915U-EC	Cat1-BIS	LTE-FDD:B1/B3/B5/B7/B8/B20 GSM:850/900/1800/1900 MHz	Open CAN

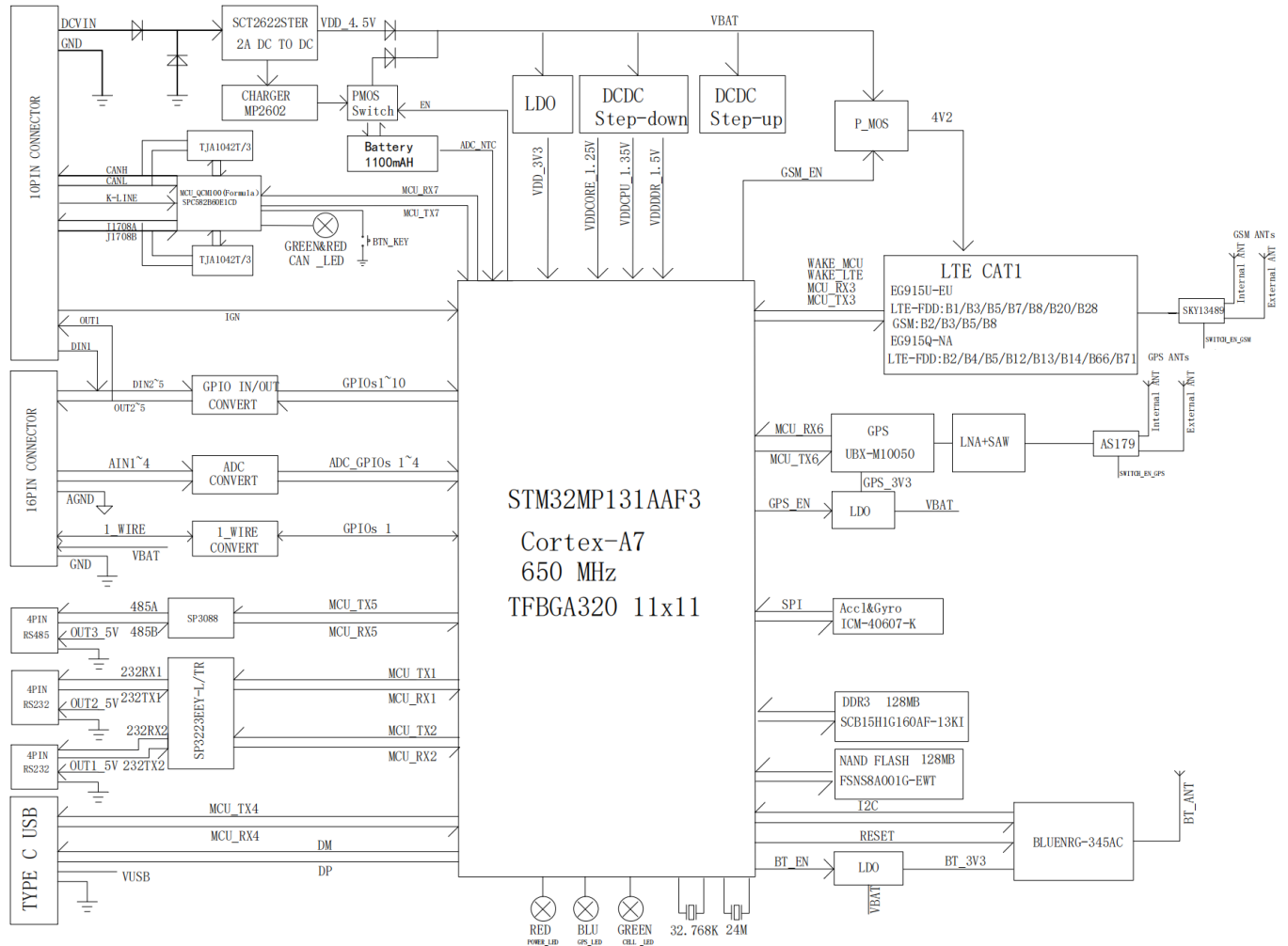
2. Key Features

CPU	STM32MP133A
RAM	256MB
FLASH Memory	8GB eMMC
Status LEDs	1 x Power, 1 x CEL, 1 x GNSS LED, 1 x CAN/Tachograph
SIM	1 x SIM card slot
Cellular Antenna	Internal or external
GNSS	u-box all-in-one GNSS receiver, support GPS, Glonass, Galileo, Beidou
GNSS Antenna	Internal or external
CAN	CAN1H/CAN1L, support reading CAN bus data in heavy (J1939/FMS) and light vehicle CAN2H/CAN2L, support reading and download tachograph data, support reading CAN data in J1708 and OBDII
K-Line	Connect D8 of tachograph for live data reading
RS232 or RS485	2 x RS232, 300-115200 baud rate 1 x RS485, 300-115200 baud rate/Half Duplex (2 wires)
I/O	1 x positive trigger input for ignition detection 5 x negative trigger inputs 4 x analog input (0-32V) 5 x digital output, open drain, 150mA max drive current 3 x 5V outputs for external accessories 1 x DC 3.3V output for temperature sensor
1-Wire Interface	Support 1-wire temperature sensor and iButton driver ID
G-sensor	3-axis motion, motion detection, harsh driving detection, shock detection
BLE	BLE5.2

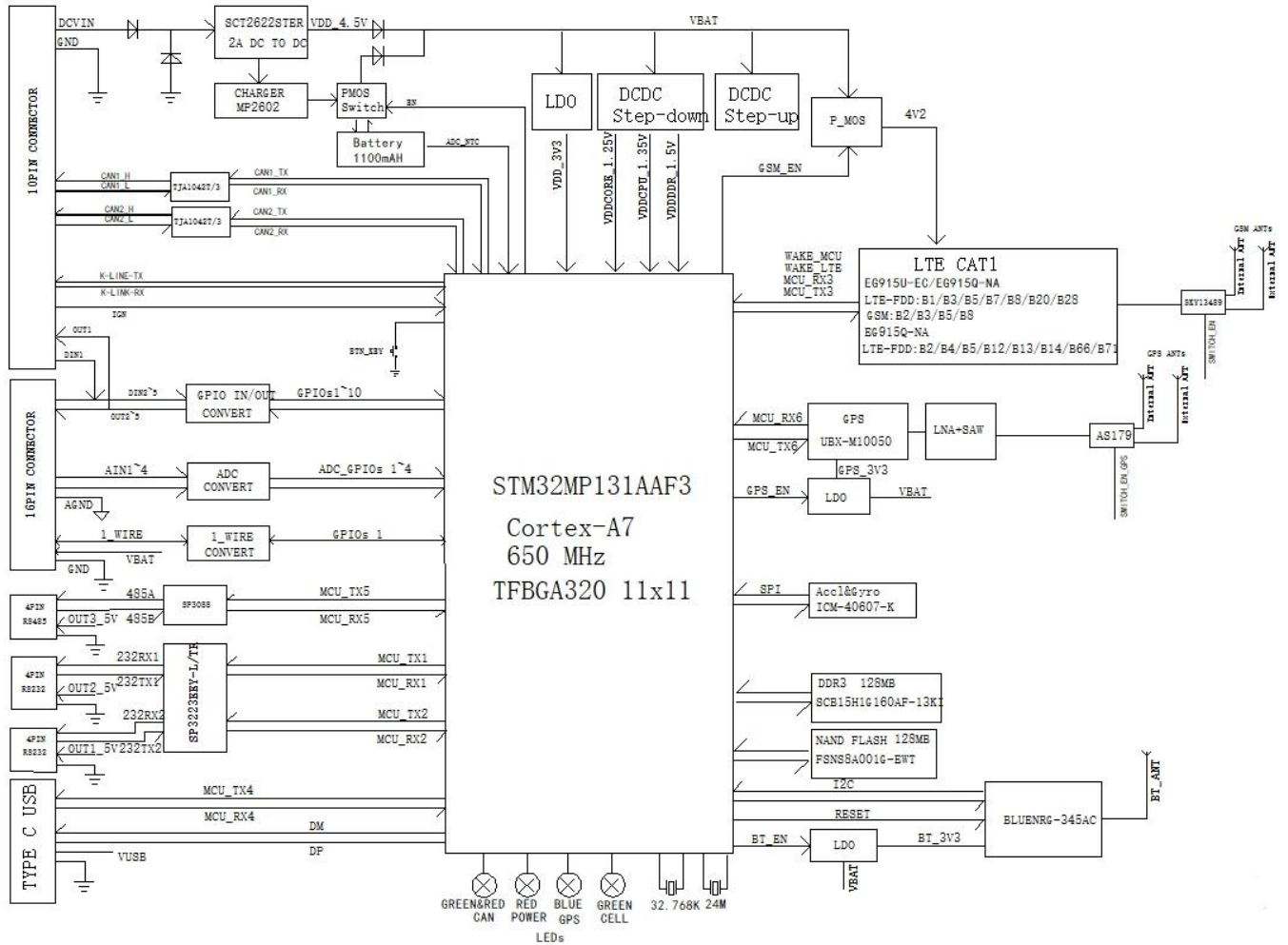
GV850/GV851 Series Hardware Specification

BLE Antenna	Internal
Battery	Li-Polymer, 1100mAh
Reset button	Reset button to reset CAN
Type-C USB	Used for configuration, upgrade and debug
Sleep Current	< 1.5mA/12V
Firmware/configuration	
Operating system	Linux OS, Kernel 5.15.67
Power	
Connector	Pin connector
Input voltage range	8 – 32 VDC, reverse polarity protection; surge protection >31 VDC 10us max
Power consumption	5W (average)
Physical Specification	
Dimensions	123*80*21mm (L*W*H)
Weight	150g
Mounting options	Flat surface placement
Operating Environment	
Operating temperature	-20 °C to 60 °C
Operating humidity	10% to 90% RH non-condensing
Ingress Protection Rating	IP30

The hardware block diagram is as following:

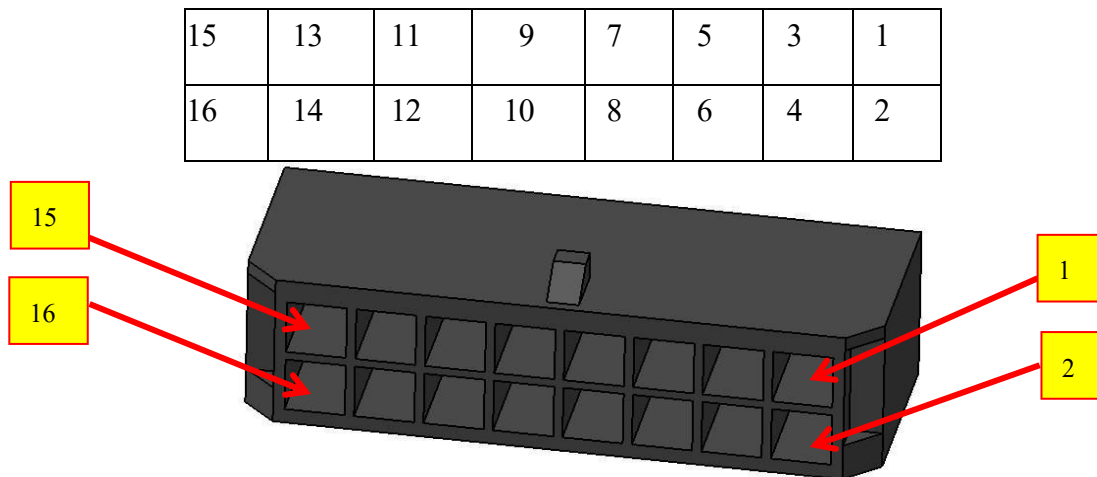


(2) GV851 Block Diagram



4. Interface Description

① 16 PIN-3.0MM CONNECTOR INTERFACE

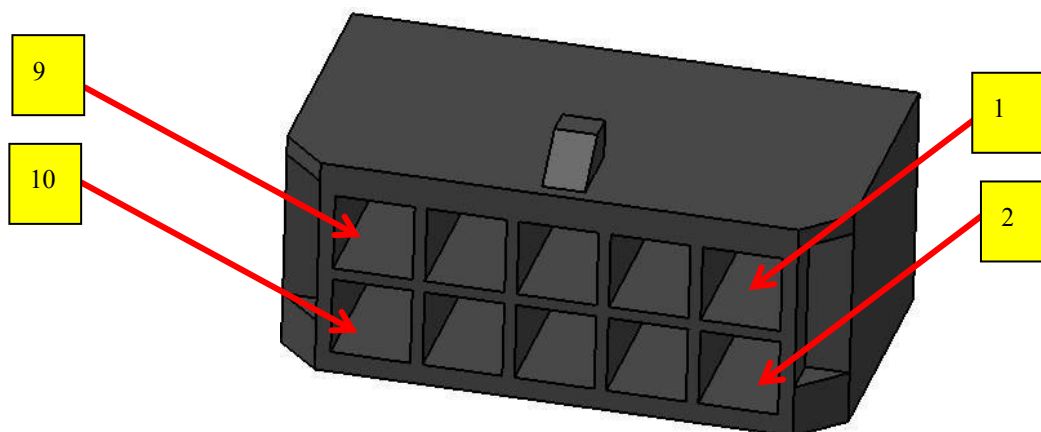


PIN NO.	PIN Name	Line Color	Function Description	Line diameter
1	AIN1	Brown/white	Analog Input1 0-32V	22#
2	DIN2	Orange/black	Negative trigger input2	22#
3	AIN2	Red/brown	Analog Input2 0-32V	22#
4	DIN3	blue	Negative trigger input3	22#
5	AIN3	White/black	Analog Input3 0-32V	22#
6	DIN4	Black/brown	Negative trigger input4	22#
7	AIN4	Gray/black	Analog Input4 0-32V	22#
8	DIN5	pink	Negative trigger input5	22#
9	OUT3	brown	Open drain output3 150mA max drive current	22#
10	OUT5	orange	Open drain output5 150mA max drive current	22#

11	OUT2	yellow	Open drain output2 150mA max drive current	22#
12	OUT4	white	Open drain output4 150mA max drive current	22#
13	1W_DATA	Green	1-WIRE data	22#
14	GND	Black	Ground	22#
15	VDD_1WIRE	Red white	Power for 1-wire devices 3.3V	22#
16	AGND	Black gray	Analog Ground	22#

② 10 PIN-3.0MM CONNECTOR INTERFACE

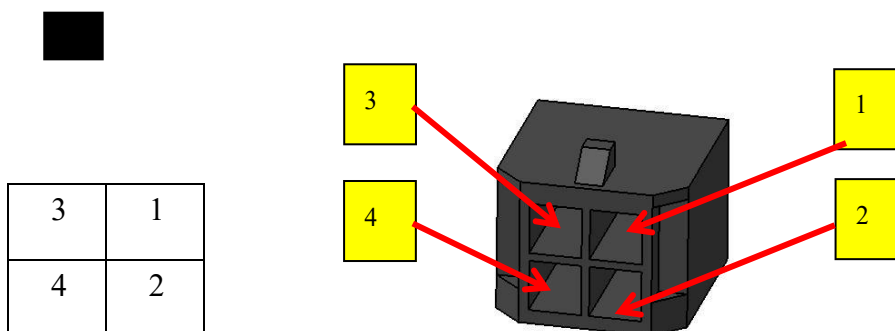
9	7	5	3	1
10	8	6	4	2



PIN NO.	PIN Name	Line Color	Function Description	Line diameter
1	DCIN	Red	DC Power Input: 8-32V	20#
2	GND	Black	Ground	20#
3	IGN	White	Ignition Detection Input,Positive Trigger	22#
4	DIN1	orange	Negative trigger input1	22#
5	K-LINE	Pink	ISO K Line	22#
6	OUT1	yellow	Open drain output1 150mA max drive current , With the function of latch the output state during reset	22#
7	CAN1L	Brown black	CAN Bus CAN1L	22#
8	CAN1H	Brown white	CAN Bus CAN1H	22#

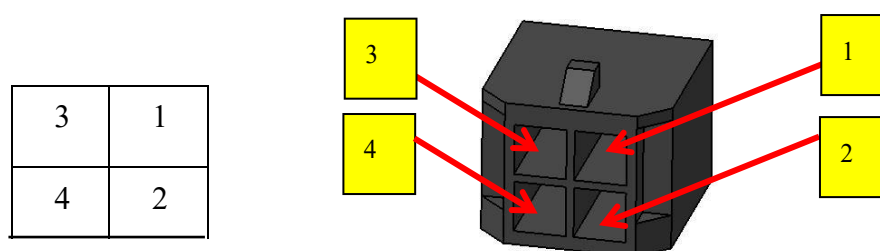
9	CAN2L	Blue	CAN Bus CAN2L	22#
10	CAN2H	Brown	CAN Bus CAN2H	22#

③ RS485 4 PIN-3.0mm Connector Interface



PIN NO.	PIN Name	Line Color	Function Description	Line diameter
1	GND	Black	External Accessory Ground	22#
2	DC5V_3	Red	External Accessory Power 250mA Max	22#
3	485B	Orange white	RS485B	22#
4	485A	Orange black	RS485A	22#

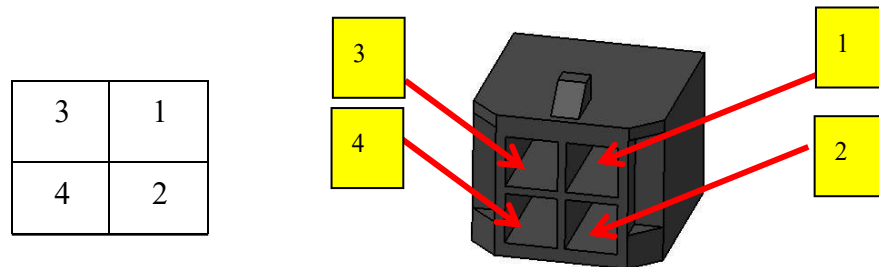
④ RS232_1 4 PIN-3.0mm Connector Interface



PIN NO.	PIN Name	Line Color	Function Description	Line diameter
1	GND	Black	External Accessory Ground	22#
2	DC5V_3	Red	External Accessory Power 250mA Max	22#

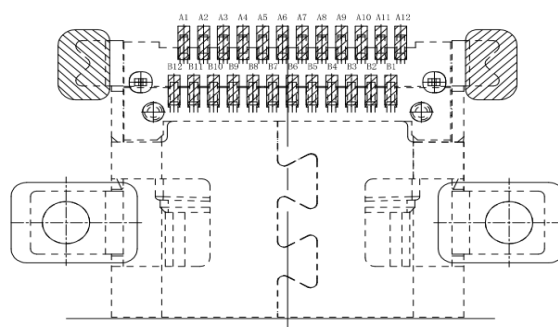
3	485B	Orange white	RS485B	22#
4	485A	Orange black	RS485A	22#

⑤ RS232_2 4 PIN-3.0mm Connector Interface



PIN NO.	PIN Name	Line Color	Function Description	Line diameter
1	GND	Black	External Accessory Ground	22#
2	DC5V_2	Red	External Accessory Power 250mA Max	22#
3	TX232_2	Gray black	UART TXD2 RS232	22#
4	RX232_2	Gray white	UART RXD2 RS232	22#

⑥ Type C Connector Interface



N0.	Type C Function Description
1	STM32 USB Debug
2	STM32 UART4

5. Technical Parameters

Item	Description
LTE Specifications	Antenna: Internal only or External Option
	EG915U-EC: LTE-FDD : B1/B3/B5/B7/B8/B20 GSM: 850/900/1800/1900MHz
	EG915Q-NA: LTE-FDD : B2/B4/B5/B12/B13/B66
	LTE-FDD : 10Mbps (DL) / 5Mbps (UL) LTE-TDD : 8.96Mbps (DL) / 3.1Mbps (UL) GSM : 85.6Mbps (DL) / 85.6Mbps (UL)
	Max Out RF Power: LTE:23dBm
GNSS(using GPS and GLONASS)	Antenna: Internal or External Option
	Chipset: U blox M10050 KT GPS Receiver
	GNSS Receiver Type: 72-Channel U_blox All-In-One GNSS Receiver

	Sensitivity: Autonomous: -147 dBm Hot Start : -156 dBm Tracking&Navigation: -162 dBm Reacquisition: -160 dBm
	TTFF(Open Sky) : Cold Start: 30s average Warm Start: 28s average Hot Start: 1s average
Main MCU (STM32MP133AAF3)	Core: Cortex – A7 Flash Memory: 128MB Flash (17MB available for userspace/system backup mode) Ram: 128MB RAM (expandable to 256MB by software) Frequency: 650Mhz (max)
OBD MCU (SPC582B60E1) (Only GV850)	Core: One main CPU, single issue, 32-bit CPU core complexes (e200z2) Flash Memory: 1088 Kbytes (1024 KB code flash + 64 KB data flash) Ram: 96 Kbytes Frequency: 80Mhz (Max)
G-Sensor	Model Type: 3D accelerometer and 3D gyroscope
	Acceleration Range: $\pm 2/\pm 4/\pm 8/\pm 16g$
	Angular Rate: $\pm 15.625, \pm 31.25, \pm 62.5, \pm 125, \pm 250, \pm 500, \pm 1000$, and ± 2000
BLUETOOTH	DATA and Config: Bluetooth5.2 (BLE)
Interface	Serial port: two RS232, 300-115200 baud rate

	one RS485, 300-115200 baud rate/Half Duplex (2 wires)
	Negative Inputs: Five negative trigger inputs
	Positive Inputs: One positive trigger for ignition detection
	5V power output: Three 5V power output for external peripherals
	Digital Outputs: Five digital outputs, open drain, 150mA max drive current, one output with internal latch circuit
	One-Wire: one-wire data (Support temperature sensor and iButton Driver ID); and one-wire VDD
	Indicator LED: CEL, GPS , PWR and OBD
	Type C Port: USB port for upgrading and debugging
	OBD Interface: Support two high speed CAN and one K-Line, please refer the connector description(4.2)

6. FCC Compliance Statement

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

