



## MARCUS® 3G GPRS Technical Description and Specifications

### Description of Views

### Pictures and Diagram of the MARCUS® 3G Radio

#### Top View with LEDs MARCUS® 3G Radio Module

- USB: USB Connector Port
- SIM DOOR: SIM Tray
- PWR: Device is powered
  - GREEN Permanently ON - Device Functional
  - Permanently OFF - No Power or Device Nonfunctional
- GPS: GPS fix is valid
- RADIO: GPRS modem transmitting
- COM: Device online with MARCUS® Servers
- ENG: Ignition is powered
  - GREEN Permanently ON - Engine ON
  - Permanently OFF - Engine OFF

#### MARCUS® 3G Radio Module Top View



#### Back View Connector Layout MARCUS® 3G Radio Module Back View

Left Connector: (8 pin) Power 12 Volts DC 3 wire install with optional Aux lines 3 Inputs / 2 Outputs

**NOTE: Power connection must be wired in the following manner:**

- RED Wire = Constant 12 Volts, Pin 7
- Black Wire = Chassis Ground, Pin 8
- White Wire = Switched Ignition, Pin 6

RS-232/DB9 Port: Serial port connector

Center Connector: GPS Connector / SMB Male Snap-on  
Right Connector: RF Connector / SMA Female Screw-on

#### MARCUS® 3G Radio Module Back View



Dimension: 1.375" H x 3.375" L x 4.75" W

#### MARCUS® 3G Radio Module Wiring Diagram

Combo GPS - Radio Antenna: Glass mount with TX/RX side towards the glass on lower passenger side windshield.

**NOTE: Sensors are connected through Pin 1-5. Power connectors are through Pins 6-8.**

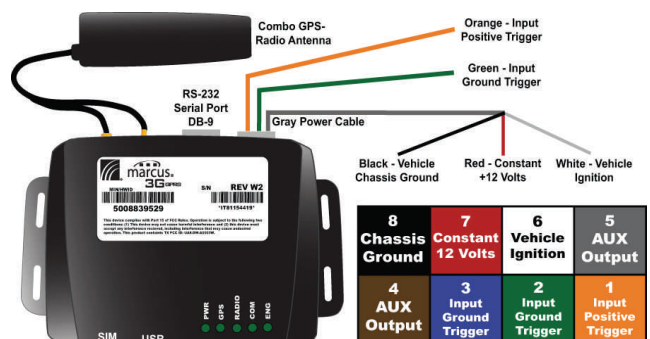
AUX/I Orange wire; Pin 1 can be configured to monitor powered sensors (+12 Volts trigger).

AUX/I Green wire; can be configured to monitor negative sensors (Ground trigger).

Recommended that Constant and Switched power be wired through a fused circuit (in-line fuse, 3 amps).

Important: Failure to properly wire the MARCUS® 3G Module will cause faulty operation.

#### MARCUS® 3G GPRS Radio Module DW-A0003-W2





## MARCUS® 3G GPRS Technical Description and Specifications

### MARCUS® 3G GPRS Device FCC ID (UA80DW-0003W)

**Manufacturer** - Discrete Wireless, Inc. DW- A0003W2

- Processor:** ARM® Core, Blackfin® DSP
- Dimension:** 1.375" H x 3.375 L x 4.75" W
- Weight:** 5.7 ounces
- Power:** 9-26 Volts
- Data Storage:** Yes
- Aux I/O:** 5 port on power connector
- USB Port:** 1-Load 115.2 kbs 2-NMEA 4800bps
- SIM Door:** SIM Card tray externally accessible
- RS-232 DB9 Port:** Serial Connector

### Wireless Modem

**Type** - Cinterion Quad-band GSM/GPRS Radio Module

- Frequencies:** 850/900/1800/1900 MHz GPRS
- Supply voltage:** 3.3 - 4.5 V
- Power Consumption:**

- Power down  $\leq$  50 mA
- Sleep mode  $\leq$  30 mA
- GPRS class 12 600 mA

#### Operating Temperature:

- Normal operation: -30°C to +75°C
- Restricted operation: -30°C to 85°C
- Switch off: +90°C
- Storage: -40°C to +85°C

#### Specs for GPRS:

- GPRS class 12: max. 85.6 kbps
- Mobile station class B
- PBCCH support
- Coding schemes CS 1-4

**Approvals:** R&ETTE, FCC, UL, IC, GCF, PTCRB, e-mark, CE

### GPS Receiver

**Manufacturer** - U-blox GPS Receiver Module ANTARIS®

**L1 frequency,** C/A code, 16 channel

**Accuracy:** Position 2.5 m CEP

#### Start-up Times:

- Hot start <3.5 sec
- Warm start ~ 30
- Cold start ~ 35 sec
- Aided start ~ 5 sec

**Signal reacquire:** < 1 s

#### Sensitivity:

- Normal mode - 146 dBm
- High sensitivity - 150 dBm
- Weak signal tracking - 158 dBm

**Power Supply:** 2.3 - 3.6 V

#### Power Consumption:

- typ. 141 mW @ 3.0 V
- typ. 127 mW @ 2.7 V
- Sleep mode: typ. 100mA

**Protocols:** NMEA, UBX binary, RTCM

**Operating Temp:** -40°C to 85°C

**Storage Temp:** -40°C to 125°C

**Vibration:** 5Hz to 500 Hz, 5g

**Shock:** Half sine 30g/11ms

### GPS - RF Antenna

**Manufacturer** - ARC Wireless Solutions, Inc.  
ARC VLPA™ Wedge Mobile Antenna

#### GPS Electrical Specifications

**Antenna Gain:** 27 dB typ.

**LNA Supply Voltage:** 3.3 +/- 0.6 V or 5 V +/- 1 V

**LNA Current Consumption:** 9 mA typ., 12 mA max.

**Cable Type:** 8 ft

**Standard Connectors:** SMB Female Snap-on

#### GSM/GPRS/UMTS Electrical Specifications

##### Frequency Range:

- 806-960 MHz
- 1710-2170 MHz

**Gain** 2 dBi typ.

**Power Rating:** 10 Watts

**Standard Cable Type:** 8 ft.

**Standard Connectors:** SMA Male Screw-on

**Length:** 4.50 in

**Width:** 1.4 in

**Depth:** 0.63 in

**Housing Material:** UV Stabilized ABS Plastic, Black

**Operating Temperature Range:** -40°F to +194°F

**Mounting Interface:** Double sided adhesive tape

Location is just the beginning.™

