

CAS-GPS Light Vehicle System

LC for high-temperature environment

Industrial grade Proximity Detection System that provides real-time 360-degree situational awareness to Light Vehicle operators. Suited to fixed Light Vehicle installations. Also available in a portable configuration (*refer CAS-GPS Portable Light Vehicle System Technical Specification*).

The Light Vehicle System comprises the following key components:

Display Operator interface with colour graphics touchscreen, processor unit, audio system, inbuilt Wi-Fi and optional cellular⁴ for CAS-WEB reporting.

Node Includes high performance GPS receiver, Vehicle to Vehicle (V2V) radio transceiver, optional high accuracy Time-of-Flight (ToF) RF proximity, Personal Area Network, RS-232 communications and Digital Inputs/Outputs. The Node is powered from the vehicle battery.

Interface Provides interconnection to Node, Display and vehicle signals, as well as providing short-term battery back-up to the Display when vehicle power is off.

The system also has optional self-test capability

An additional Node that enables automatic real-time functional health monitoring of a primary CAS-GPS/RF system on a vehicle without the requirement for a remote Test Station and operator interaction.

System Features

- Industrial Grade Intelligent Display with 4.3" touchscreen & mounting accessories
- Common user interface with 7" version used for Heavy and Medium vehicles
- Supports Wi-Fi and/or Cellular communications for CAS-WEB reporting
- Supports voice alerts to programmable proximity alarm logic & geofence rules
- Supports self-test system for real-time health monitoring & reporting
- High-performance multi-constellation GNSS receiver, V2V digital radio, optional high accuracy ToF RF & IEEE 802.15.1 link and four configurable inputs (e.g. ignition, reverse)
- Universal mounting arrangement
- Certified Short-Range Device (SRD) V2V radio (ordered for specific region)
- Intelligent power management minimises battery drain for periods of park up/inactivity¹
- Works on 12V automotive system. Supported voltage range for PROD1052 is from 12V to 24V
- Suitable for installations where display surface temperature exceeds 36°C

¹Power Management/States

The system transitions to its lowest possible power state when the vehicle ignition is off, but will continue to beacon at a lower rate, making its location known to surrounding vehicles.

Prolonged operation in this mode will eventually deplete the vehicle battery, and isolation should be considered in these cases. In case of vehicle battery isolated from nodes, nodes get powered off and no beacons will occur after that.

Vehicle battery holdup time (and ability to start the vehicle after a prolonged park up) will vary

greatly as it depends on:

- Battery state/age
- Battery State of Charge (SoC)
- Battery temperature
- Other low drain devices permanently connected to the battery
- Starting current and wiring volt drop of the vehicle concerned, etc

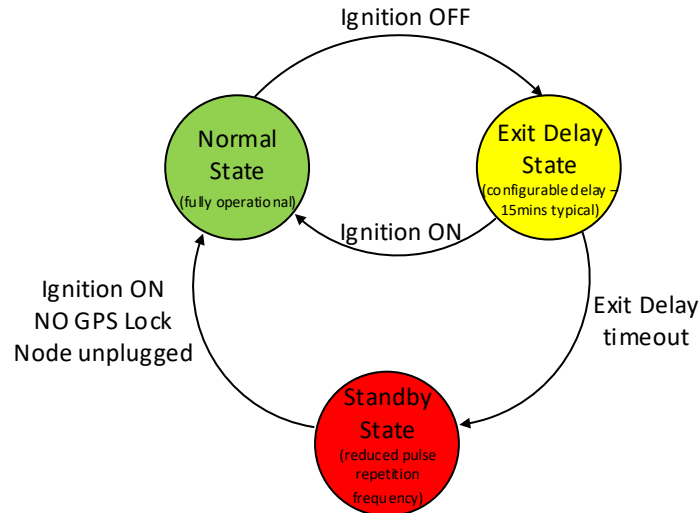


Figure 1 - LV System States

Operating Condition (13V nominal)	PROD1150 Display	PROD1052-NB Node Single/Dual	PROD1151 Interface	Complete System
Normal Mode				
Average ²	215 mA	80/140 mA	20 mA	315/375 mA
Peak ³	300 mA	90/150 mA	650 mA	1040/1100 mA
Standby Mode				
Average ²	0 mA	80/140 mA	20 mA	100/160 mA
Peak ³	0 mA	90/150 mA	650 mA	740/800 mA
Peak Charging Current	N/A	N/A	630 mA	630mA

² Average current draw measured when internal batteries were fully charged. Averages will differ when using batteries of different states of charge.

³ Peak current draw measured when internal CAS-GPS batteries are fully discharged, and connected to a vehicle battery with ignition off.

Specifications	PROD1150 Display	PROD1052-NB Node	PROD1151 Interface
System	Internal audio system Internal ambient light sensor Linux O/S 4.3" size Resolution: 480 x 800 Brightness: 400 (typ.) Capacitive touchscreen	GPS, GLONASS, Galileo, QZSS, SBAS compatible Horizontal accuracy ⁷ up to CEP ₅₀ 2.5m (24 hours static, -130 dBm, > 6 Satellites Visible) 5Hz refresh rate	
Internal Interfaces	Bluetooth (PAN)	RS232, Bluetooth (PAN)	RS232/CAN
External Interfaces			4 D/I (12/24V _{DC})
Power Supply Input Voltage	Powered from Interface unit	12Vdc system voltage 15W max ISO 7637-2 Level III compliant for 12V systems	12/24Vdc system voltage 15W max ISO 7637-2 Level III compliant for 12/24V systems
Optional RF Sub Systems		Time of Flight ranging 10mW, +2dBi peak gain antenna 2.4Ghz based Range limited to 250m line of sight (environment-dependent) Accuracy up to ±2m (depends on mode) Mode 22MHz or 80MHz B/W	N/A
Cellular⁴	GSM/GPRS/EDGE, UMTS/HSPA+		
IEEE 802.15.1	2.4GHz PAN Up to +11dBm EIRP	2.4GHz PAN Up to +14dBm EIRP	N/A
Non-ranging telemetry between systems	N/A	Refer also to Region Variants table Spectrum Opportunity Detection 'listen-before-talk' mode of operation	N/A
Charge Time	N/A	N/A	5.5 hours ⁵
Holdup Time	N/A	N/A	configurable timer in minutes
Operating Temp	-10 to +60°C	-40°C to 70°C	-10 to 60°C
Storage Temp	-20 to +60°C	-40°C to 90°C	-20 to 60°C
Operating Humidity	5% to 95% RH	5% to 95% RH	5% to 95% RH
Weight	0.5kg (including basic mount)	1 kg (Fixed Node), 2kg (Self-Test Node)	0.9kg (including mount)
Size (HxWxD)	141x85x82mm (including basic mount)	70 mm x 140 mm x 140 mm (Same size for Fixed Node and Self-Test Node)	63x180x204mm (including mount)
IP Rating		IP 66 (IEC 600592)	IP67

⁴ Dependent upon availability of end-user-provided cellular network coverage and SIM card, data charges may apply

⁵ Maximum charge time from 0% to 90% state of charge over 0°C to 35°C external ambient temperature, longer charge times apply outside this temperature range

⁶ At 0°C to 60°C external ambient temperature, reduces to 18 hours between -10°C and 0°C

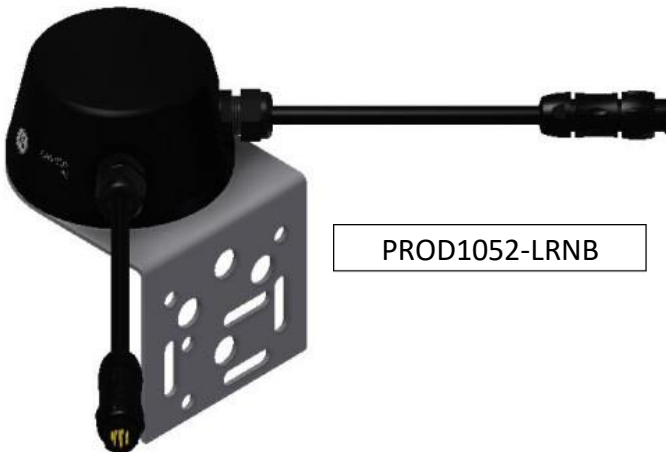
⁷ CEP50 2.5m indicates that 50% of the GNSS readings will be within 2.5m of the true location

Region Variants	Region 1	Region 2	Region 4	Region 5	Region 7
Countries	RSA Europe Ghana Mozambique	Brazil, USA Canada, PNG Australia Mexico Peru, Chile Colombia	India	Russia	Indonesia
Digital Radio Centre Freq.	869.525 MHz	920 MHz	866MHz	864.5MHz	924 MHz
Transmit Power	100mW	100mW	100mW	25mW	100mW

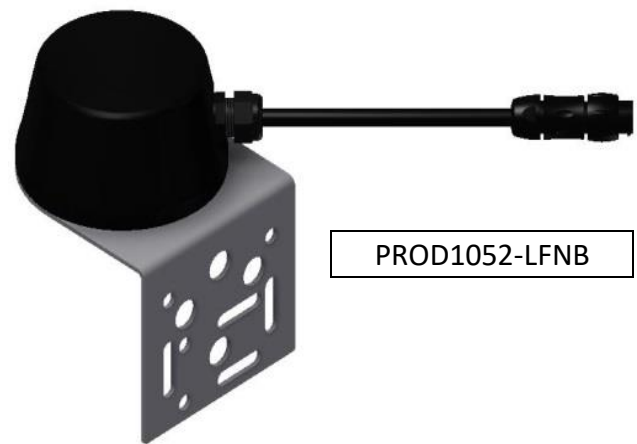
PROD1150 DISPLAY
 (shown with PROD1149
 MOUNT and MOUNTING
 ACCESSORIES)



PROD1151 INTERFACE

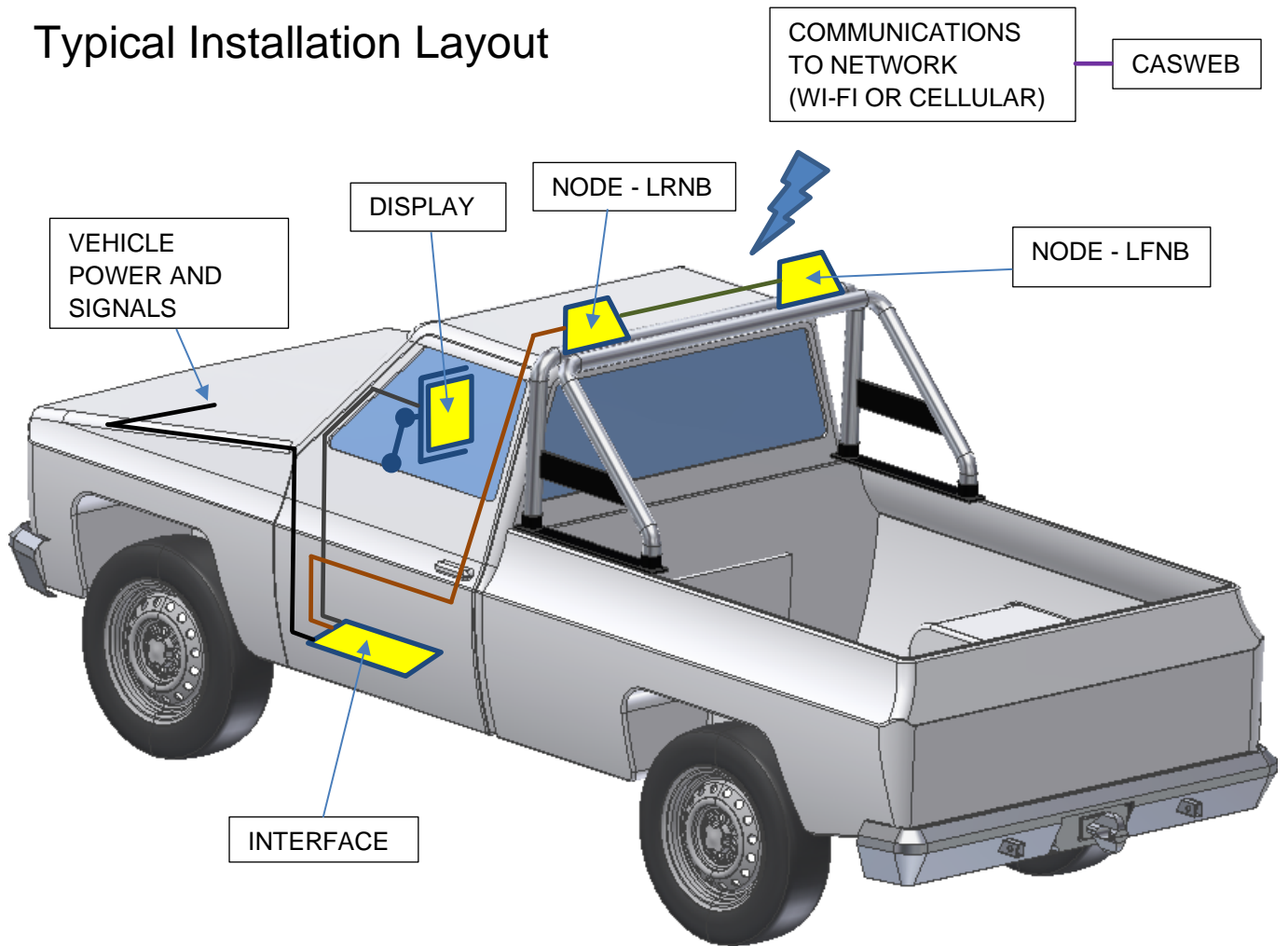


PROD1052-LRNB



PROD1052-LFNB

Typical Installation Layout



Refer installation manual for wiring details and precautions

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