

# CAS-GPS Light Vehicle System

## *LM for moderate-temperature environments*

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 cellular<sup>1</sup> 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 remotely from the vehicle battery. The node also contains an optional battery to ensure that the GPS receiver, V2V radio and ToF continue to operate during the loss of primary power.

### ***The system also has optional self-test capability***

*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 unit & IEEE 802.15.1 link and two configurable inputs (e.g. ignition, reverse)
- Universal mounting arrangement
- Certified Short-Range Device (SRD) V2V radio (ordered for specific region)
- Intelligent internal power management prevents over-discharge of vehicle battery
- 12/24 V<sub>DC</sub> operation

Suitable for installations where display surface temperature is up to 36°C

Specifications	PROD1044 Display	PROD1116-E /L Node	PROD1155 Display Cable
<b>System</b>	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 <sup>4</sup> up to CEP <sub>50</sub> 2.5m (24 hours static, -130 dBm, > 6 Satellites Visible) 5Hz refresh rate	
<b>Internal Interfaces</b>	USB	RS232	USB to RS232
<b>External Interfaces</b>		2 D/I (12/24 V <sub>DC</sub> )	
<b>Power Supply Input Voltage</b>	Powered from Display Cable	12/24 V <sub>DC</sub> system voltage 15W max ISO 7637-2 Level III compliant for 24 V systems	12 V <sub>DC</sub> system voltage 5W max
<b>Optional RF Sub systems</b>	Wi-Fi 802.11 b/g/n	Time of Flight ranging 10 mW, +2 dBi peak gain antenna 2.4 GHz based IEEE802.15.4a Range limited to 250 m line of sight (environment-dependent) Accuracy up to ±2m (depends on mode) Mode 22 MHz or 80 MHz B/W	N/A
<b>Cellular<sup>1</sup></b>	GSM/GPRS/EDGE, UMTS/HSPA+		
<b>IEEE 802.15.1</b>	2.4 GHz PAN Up to +11 dBm EIRP	2.4 GHz PAN Up to +14 dBm EIRP	N/A
<b>Non-ranging telemetry between systems</b>	N/A	Refer also to Region Variants table Spectrum Opportunity Detection 'listen-before-talk' mode of operation	N/A
<b>Charge Time</b>	N/A	5.5 hours <sup>2</sup>	N/A
<b>Holdup Time</b>	N/A	24 hours <sup>3</sup>	N/A
<b>Operating Temp</b>	-10 to +60°C	-10 to 60°C	-10 to 60°C
<b>Storage Temp</b>	-20 to +60°C	-20 to 60°C	-20 to 60°C
<b>Operating Humidity</b>	5% to 95% RH	5% to 95% RH	5% to 95% RH
<b>Weight</b>	0.5 kg (including basic mount)	1.7 kg	0.2 kg
<b>Size (HxWxD)</b>	141x85x82 mm (including basic mount)	214x133x145 mm (excluding cables)	2 m length
<b>IP Rating</b>	IP67	IP66	IP67
<b>Vibration rating</b>		IEC Mechanical Class 5M3	
<b>Shock rating</b>		IEC Mechanical Class 5M2	
<b>Compliance</b>	System certified for use in Australia, RSA, USA, Canada, Brazil, Chile, Colombia, PNG & Mozambique. PENDING certification for use in Ghana, Mexico, Peru, India, Russia, Indonesia & Europe – confirm at time of order		

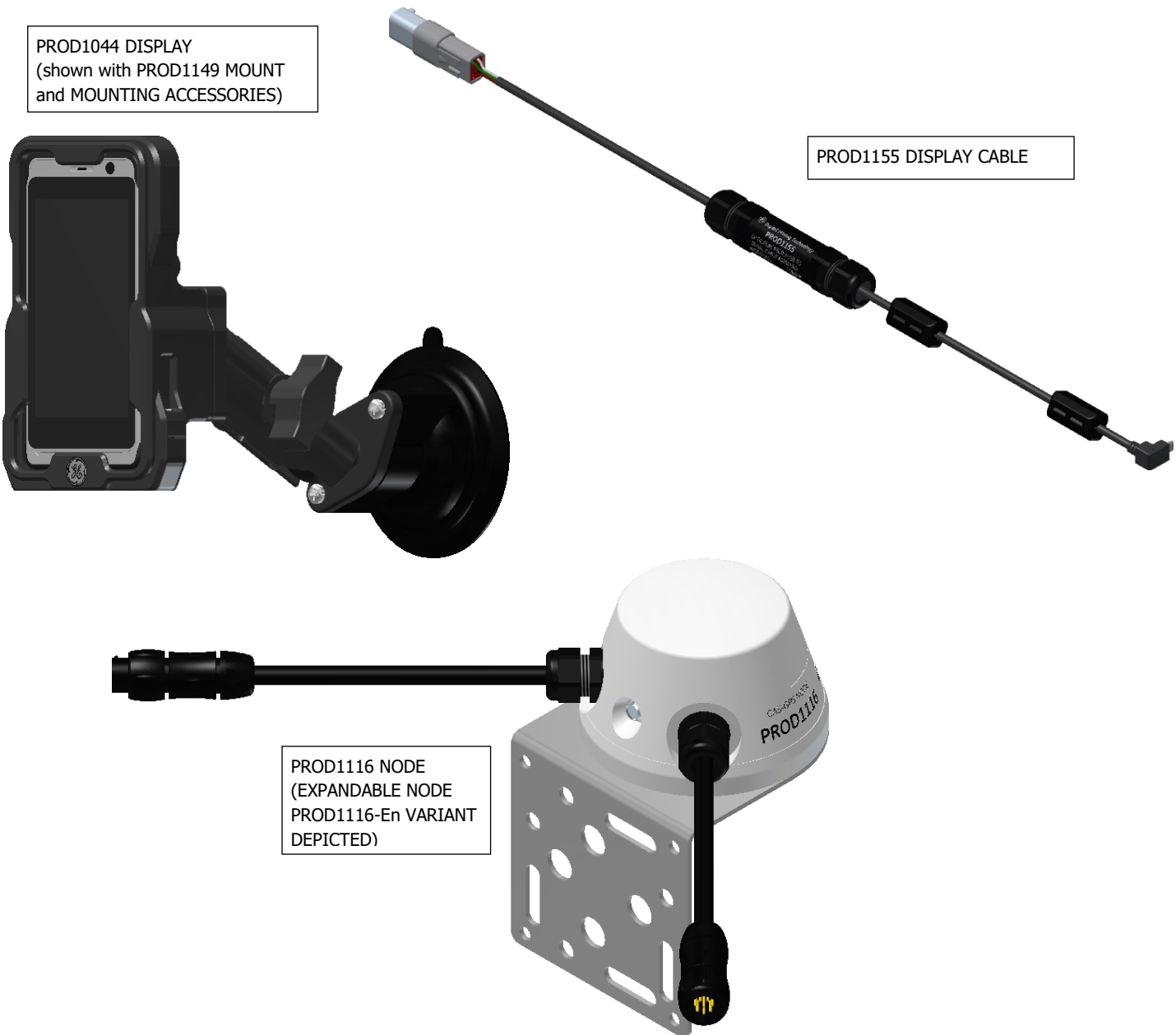
<sup>1</sup> Dependent upon availability of end-user-provided cellular network coverage and SIM card, data charges may apply

<sup>2</sup> 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

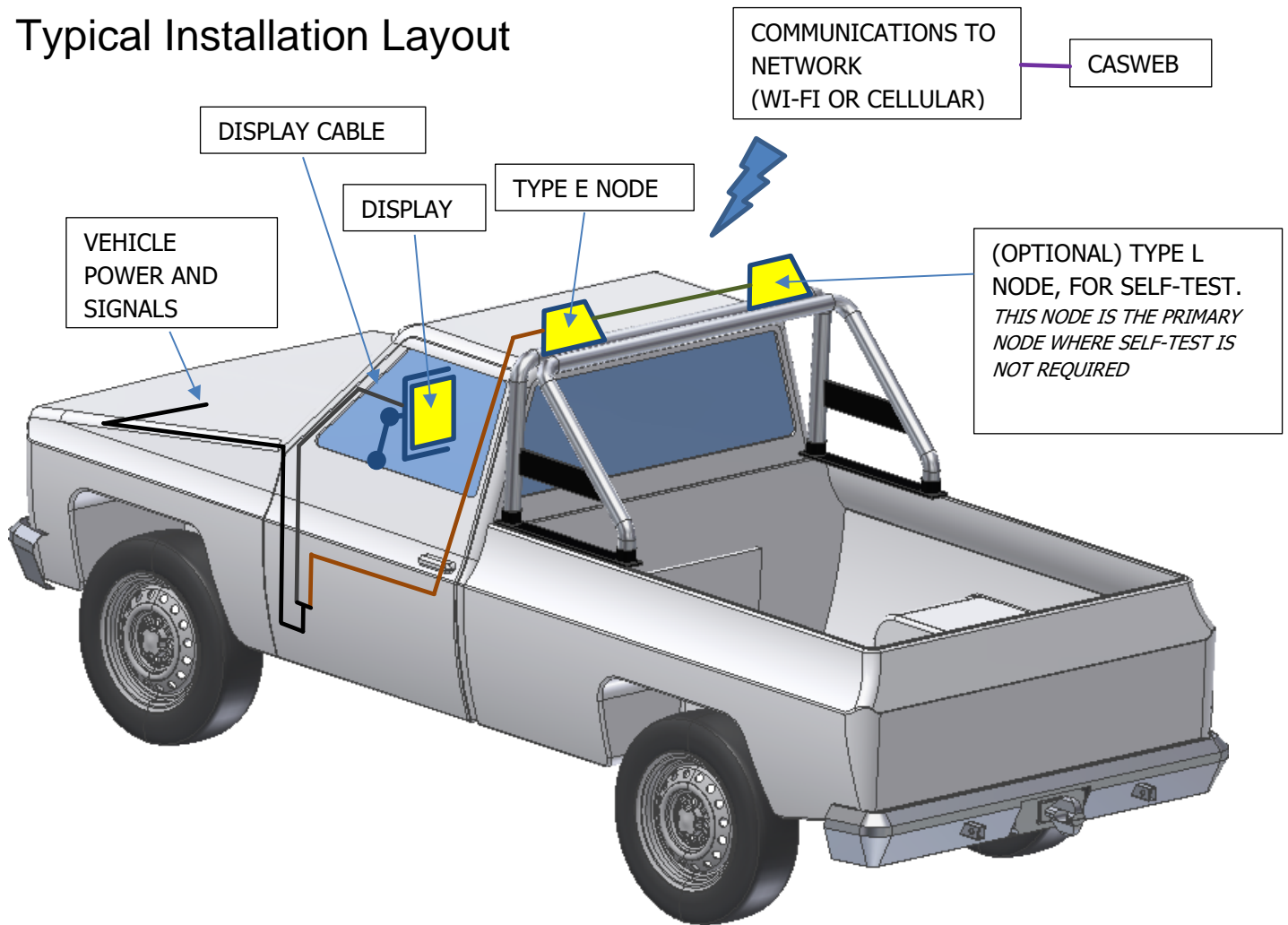
<sup>3</sup> At 0°C to 60°C external ambient temperature, reduces to 18 hours between -10°C and 0°C

<sup>4</sup> 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
<b>Countries</b>	RSA, Europe Ghana, Mozambique	Brazil, USA Canada, PNG, Australia Mexico, Peru, Chile Colombia	India	Russia	Indonesia, Mongolia
<b>Digital Radio Centre Freq.</b>	869.525 MHz	920 MHz	866 MHz	864.5 MHz	921/922 MHz
<b>Transmit Power</b>	100 mW	100 mW	100 mW	25 mW	100 mW



## Typical Installation Layout



Refer installation manual for wiring details and precautions

### System Part Number Reference

	Description
<b>CG-WRLM-XXKXX</b>	CAS GPS + WIFI REGION R FOR LIGHT VEHICLE ECONOMICAL MODERATE TEMPERATURE WITH INSTALLATION KIT TO SUIT
<b>CG-BRLM-XXKXX</b>	CAS GPS + WIFI + GSM REGION R FOR LIGHT VEHICLE ECONOMICAL MODERATE TEMPERATURE WITH INSTALLATION KIT TO SUIT
<b>CG-XRLM-XXKXT</b>	CAS GPS SELF TEST UNIT REGION R WITH INSTALLATION KIT TO SUIT LIGHT VEHICLE ECONOMICAL MODERATE TEMPERATURE
<b>CG-WRLM-XXKXX-NT</b>	CAS GPS + WIFI REGION R FOR LIGHT VEHICLE ECONOMICAL MODERATE TEMPERATURE WITH INSTALLATION KIT TO SUIT NO ToF
<b>CG-BRLM-XXKXX-NT</b>	CAS GPS + WIFI + GSM REGION R FOR LIGHT VEHICLE ECONOMICAL MODERATE TEMPERATURE WITH INSTALLATION KIT TO SUIT NO ToF
<b>CG-XRLM-XXKXT-NT</b>	CAS GPS SELF TEST UNIT REGION R WITH INSTALLATION KIT TO SUIT LIGHT VEHICLE ECONOMICAL MODERATE TEMPERATURE NO ToF

Note: "R" in System Part Number denotes Region Code

Industrea Mining Technology Pty Ltd  
T/A Digital Mining Technology  
web: [www.wabteccorp.com](http://www.wabteccorp.com)