



GPDSAT LCU700

GPDSAT System Overview

GPDSAT is a smart system, combined with a high technology and an advanced software algorithm for the Tracking field both for security and fleet management, as well as locating assets and people.

The system uses advanced software algorithms for field tracking of vehicles and provides customers with a selection of real-time information about the tracked vehicle.

Due to its versatility, you can use the **GPDSAT** for any of the following applications:

- Sending real-time text messages to vehicle owners
- Protecting vehicles from theft
- Securing domestic and business premises
- Managing business enterprises
- Managing large databases, for example, population statuses and digital maps
- Tracing vehicles and calls

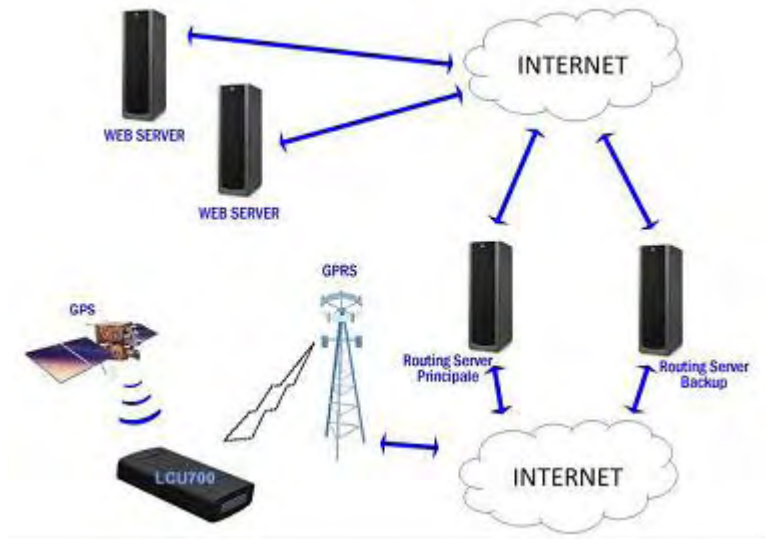
The **GPDSAT** system consists of:

- The mobile unit **LCU700**
- The communication layer of the cellular network
- Web application **GPD ONLINE**
- Routing Application

The **GPDSAT LCU700** is able to communicate through various channels – GPRS/1x/SMS in GSM/CDMA networks, using TCP/IP and SMPP protocols, modem terminal connection, and private networks.

The communication between the units and **GPD** suite of software is going through the GPRS channel, (For GSM networks - 1x for CDMA networks) or the SMS channel. There are different communication protocols being used in the **GPD** system: TCP/IP protocol, the SMPP protocol, direct cable connection, private network and the UDP protocol for external applications.

The following figure describes the components of the **GPDSAT** System.



GPDSAT LCU700 Technical Specifications

The following table describes the technical specifications of the **LCU700**:

Specification	Description	
Supply	Voltage	8V-32V (in one unit)
	Power	1 mA (sleep mode) – 92 mA (transmit)
Temperature	Operational	-40°C to 60°C
	Storage	-40°C to 85°C
Operating humidity	50% – 80%	
Measurement	4.701 x 61 x 21 or 24.5 mm (Motorola), 150 grams	
Cellular modem	GSM	Motorola G24-L, Quad Band (850, 900, 1800, 1900). Built in antenna
Network	Data	GSM, GPRS, and SMS
	Voice	Headset kit available
Messages	SMS	Encrypted protocol
	GPRS	TCP/IP over PPP
CPU capacity	Static RAM	128 Kb
	Nonvolatile memory	34 Kb
	Flash memory	2048 Kb
Alarm system	Immobilizers	External – usage as gradual stop
	Disarming options	Keypad, Dallas key, remote control, transponder
		Remote control with keypad
Backup battery	Type	Varta PoLiFlex, 800-1200 mAh
Com. port	RS232	115,200 bps (default)

• Key Features

Fleet

- **Programmable Events:** Events can be defined to both transmit and act on complex events. For example – activating the horn and transmitting when a tanker truck activates its engine while unloading fuel at the fuel depot.
- **Speed restrictions:** Programmable alerts whenever the vehicle goes above/below a pre-defined speed, to detect over hastiness, and unauthorized stops.
- **Mileage:** Ability to alert every specific number of kilometers.
- **Motor is running while stationary:** Alert when the motor is running and the vehicle is left stationary at a specified time range.
- **Perimeter based alerts:** Geo-fencing alerts when a vehicle is entering/leaving/not entering/not leaving a specified a designated area at a specified time.
- **Values Monitoring:** Monitoring of analog inputs to alert when voltage/temperature are exceeding.
- **Driver Identification:** By using different Dallas iButton, Remote Controls, or Keypad Codes, the unit sends the code of the current vehicle driver to the center.
- **Mileage Transmissions:** Periodic mileage transmissions for the needed vehicle's maintenance.
- **Automated Tracking:** Automatic support for vehicle tracking at specified time, without sending additional commands to the vehicle.

Alarm System

- **Complete Security System:** Complete operational security system with different logic states to detect break-ins and report to the center.
- **Times Programming:** Complete control over the alarm system timing (the intervals at which the unit stays at each of the alarm system logic modes).
- **Towing Detection:** GPS-based detection of movement while the system is armed produces a towing alert to the center.
- **Low Power Warning:** Warning transmission whenever the vehicle's main power goes below a predefined threshold.
- **4 Disarming Devices:** Four disarming devices are available, including keypad, remote control, remote control with keypad on-board, and Dallas iButton.

- **Unauthorized Code Alert:** Alert when unauthorized code has been used by an unauthorized disarming device.
- **Gradual Stop:** Option to gradually stop the vehicle by sending pulses to the immobilizer or fuel pump.

Vehicle and Driver Protection

- **Emergency Button:** Support for emergency button to invoke an immediate high-priority transmission to the center.
- **Accident and Harsh Braking Detector:** Built-in accelerometer serves as both accident and a harsh braking detector.
- **Auto Lock:** Support for locking/unlocking the doors whenever the motor is starting/stopping.

Inputs/Outputs

- **8 Digital Inputs:** Five digital inputs, usually used for Ignition, Emergency, Doors, Arming, and Disarming.
- **1 Pulse Counter Input:** To measure odometer pulses, or any sort of pulses generated by external devices.
- **Inputs programming:** Each input can be programmed to be used in order to trigger transmissions under any condition, and to arm or disarm the security system.
- **3 Analog Inputs:** Two analog inputs, each can be set to work in two different measurement scales. Example usages are be with temperature sensors and fuel measurement without the need for external sensor.
- **Main power indication:** A main power measurement to indicate the vehicle's battery voltage.
- **Canbus connection:** Direct connection to the vehicle's computer using the Canbus protocol.
- **Odometer Support:** Support for digital odometer to read its pulses and calculate the vehicle's mileage.
- **4 Digital Outputs:** Usually used for Lock, Unlock, Siren, and Immobilizer.
- **Pulses Width Modification:** Ability to set the width and number of the lock and unlock pulses.

Communication

- **GSM Quarter Band:** Support for GSM networks, while using both the SMS channel and the GPRS/EDGE channels. Supported bands are 850/900/1800/1900 MHz

- **TCP Connectivity:** Support for the GPRS/1x TCP/IP networks by either staying online at all times, or coming online when a transmission is initiated.
- **DNS Support:** Connection to a server by its host name
- **Backup Server:** Backup host name support in case of main server has gone offline.
- **Encryption:** Protocol encryption to provide maximum security between the vehicle and the center.
- **External Protocol Support:** Support for external devices for 3rd party protocols, such as text terminal or RFID readers.
- **Navigation Support:** Support for external devices for navigation, such as handheld or laptop computers.
- **Compact Protocol:** Less than 70 bytes per message enables very small bandwidth usage and saved communication costs.
- **Voice Calls:** Hands-free kit to support voice call from and to the vehicle.
- **Zigbee Connection:** 2.4GHz Zigbee Radio protocol to support connecting to sensor over RF, and transmitting of packets to central stations without the use of the cellular network.
- **Internet Connection:** Support for direct modem access to initiate an internet connection by connecting a handheld or a laptop device to the device.

Over-The-Air commands

- **Firmware Upgrade:** Over the air firmware upgrade to apply new features to already-installed units.
- **Status Requests:** Ability to request for the latest status of the vehicle, and receives the entire information about all the inputs, outputs, and location information.
- **Tracking:** Option to remotely engage periodic transmissions from the unit in the intervals of 10 seconds up to 5 days.
- **Tracking Interval By Channel:** Different transmission intervals can be set to each communication channel used –SMS/GPRS/EDGE/Roaming.
- **Parameters Programming:** Complete programming of each and every one of the unit's parameters over the air.

- **Remote Arm/Disarm:** Option to arm or disarm the vehicle from the center.
- **Output State Changing:** Option to remotely activate different outputs, such as locking/unlocking the doors, starting the siren, activating the immobilizer.
- **Learn Dallas/Remote Control:** Remote activation of extra Dallas iButton and Remote Control.
- **Mileage setting:** Remote update to synchronize the unit and the vehicle internal mileage counter.
- **Voice Call Request:** Request the unit to call a specific number for a voice call to communicate with the driver and/or hear the activity inside the vehicle.
- **Text Messaging:** Send a text message directly to the vehicle's text terminal.

Miscellaneous

- **Garage Mode:** Special condition in which the alarm system is turned off and no emergency transmission are sent. This condition is time-limited.
- **Internal Logging:** Whenever a transmission was failed to be sent, the entire message is saved to the memory for later transmission. 50 thousands complete messages including statuses can be recorded this way.
- **Low Power Mode:** Option to switch to a low power mode (up to 14mA) whenever the alarm system is armed.
- **Fully Certified:** Fully certified and complies with the highest standards of the automotive industry.

Location

- **GPS Receiver:** Built in GPS receiver connected to the unit, allowing real-time tracking and on-board location-based analysis.
- **Mileage by GPS:** Advanced algorithm to calculate the vehicle's mileage based on the GPS, without the need for any external connections to the vehicle's odometer.
- **Last Location Saving:** Saving of the vehicle's last position, in case of going out of GPS coverage.