

Features

- Broadcast parameters on high speed CAN.
- J1939 navigation system standard compatible.
- OMNISTAR VBS and CDGPS compatible.
- Small size GPS receiver with magnetic base antenna.
- WAAS enabled 14 channels receiver: up to 0.6m (2ft) position accuracy.



IDNGPS-200

Description

The GPS receiver obtains actual vehicle position, velocity, heading and more from up to 14 different satellites. See table 1 and 2 for the details about the IDNGPS recording parameters.

A built-in LED shows the current GPS state:

LED status	CANGPS Status
Green <i>Steady</i>	Powered, GPS is not receiving data
Green/Red <i>Slow blinking</i>	No position fixed, GPS is receiving data
Red <i>Fast blinking</i>	Position fixed

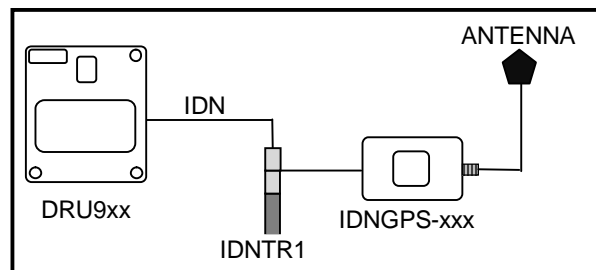
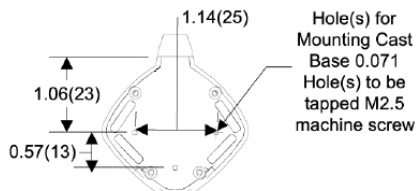
Different models for different applications are available:

Part number	Update rate	Notes
IDNGPS-010	1Hz	
IDNGPS-200	20Hz	
IDNGPS-200-OMN	20Hz	With Omnistar and CDGPS compatibility

Installation

Setup:

- Install the antenna on top of the vehicle. Make sure that there is no obstruction between the antenna and the sky (for maximum GPS performance, it is recommended to install the magnetic base antenna on a horizontal metallic surface). For permanent installation, three pre-threaded holes for M2.5 screws are available.
- Connect the IDNGPS to the ISAAC Device Network (IDN).
- Connect the termination resistor (IDNTR1) at the end of the IDN.
- Refer to the IDNGPS and DRU9xx installation block diagram:



IDNGPS and DRU9xx installation block diagram

- Route the cables away from sources of interference, such as ignition coils, plug leads, electronic modules or antennas.
- Verify that the cable is not pinched or stretched by moving parts.
- Do not bend cable with curvature radius smaller than 1.60" [40 mm].

Software configuration:

CAN Port Activity: Single Frame Broadcast

CAN bit rate: 500 Kbit/s

SFB Message: Import database file “IDNGPS.XML”

Refer to the IDNGPS User Guide to configure the bit rate and the IDN identifier (J1939 or ISAAC IDN ID) of the broadcasted parameters groups.

Table 1 - IDNGPS recording parameters available

GPS Channel	Description
gps_Time_Sec	UTC Time - Second
gps_Time_Min	UTC Time - Minute
gps_Time_Hr	UTC Time - Hour
gps_Lat	Latitude positioning (DD.dddddddd) (9 decimal places)
gps_long	Longitude positioning (DDD.ddddddddd) (9 decimal places)
gps_course_mag	Magnetic course over ground
gps_speed	Speed over ground
gps_course_true	True course over ground
gps_Altitude	Antenna height above/below mean sea level
gps_Lat_std	Latitude standard deviation
gps_Long_std	Longitude standard deviation
gps_Alt_std	Altitude standard deviation
gps_geoidal_altitude	Geoidal height
gps_quality	GPS Quality indicator 0 = fix not available or invalid 1 = GPS fix 2 = C/A differential GPS, OmniSTAR HP, OmniSTAR XP, OmniSTAR VBS or CDGPS 4 = RTK fixed ambiguity solution, (RT2) 5 = RTK floating ambiguity solution (RT20), OmniSTAR HP or OmniSTAR XP 6 = Dead Reckoning mode 7 = Manual input mode 8 = Simulator mode 9 = WAAS
gps_NbSatellite	Number of satellites in-use, 0 to 12
gps_Mode	Mode indicator 65 = Autonomous 68 = Differential 78 = Data not valid
gps_SN	Serial Number of the CANGPS
gps_Firm_Rev	Firmware revision of the CANGPS

Table 2 - CANGPS recording parameters available in J1939 CAN ID mode

GPS Channel	Description
Seconds	UTC Time - Second
Minutes	UTC Time - Minute
Hours	UTC Time - Hour
Compass Bearing	Magnetic course over ground
Navigation-Based Vehicle Speed	Speed over ground
Altitude	Antenna height above/below mean sea level
Latitude	Latitude positioning (DD.dddddddd) (9 decimal places)
Longitude	Longitude positioning (DDD.ddddddddd) (9 decimal places)

Specifications
IDNGPS Module

Description	Symbol	Min	Typ	Max	Unit
Power Supply					
Input Voltage	V_{in}	9		30	V
Supply Current @12V	I_{in}		112		mA
Operating Temperature	T_{Oper}	-40		85	C
Storage Temperature	T_S	-40		85	C
Receiver Performance					
#GPS channels			14		
Communication Type			HS CAN		
Bit rate			500		Kbps
Acquisition times					
Reacquisition	T_{rea}		0.5		sec
Warm start (all data known)	T_{warm}		35		sec
Cold start (ephemiris unknown)	T_{cold}		60		sec
Accuracy - GPS Standard Positioning Service (SPS)					
Position	SPS_{Pos}			1.8	m
Velocity	SPS_{Vel}		0.03		m/s
Accuracy - WAAS					
Position	$WAAS_{Pos}$			0.6	m
Velocity	$WAAS_{Vel}$		0.03		m/s
Mechanical Specifications					
Height	H		30 (1.18)		mm
Width	W		88 (3.46)		(in)
Depth	D		64 (2.52)		
Weight	w		200 (7.1)		g (oz)

Magnetic antenna

Description	Symbol	Min	Typ	Max	Unit
Operating Temperature	T_{Oper}	-40		80	C
Storage Temperature	T_S	-45		80	C
Output Impedance	Imp		50		Ohm
Gain					
@3.3 VDC			28		dB
@5 VDC			28.5		dB
Antenna Mechanical Specifications					
Height	H		51 (2.32)		mm
Width	W		45(2.05)		(in)
Depth	D		12 (0.53)		
Cable Length	L		3 (9.8)		m (ft)
Weight	w		120 (4.2)		g (oz)