

Development UDR CAN Sensor

Overview

This stand-alone CAN based GPS/GNSS Untethered Dead Reckoning (UDR) sensor outputs latitude, longitude, altitude, Course Over Ground and speed at up to 20Hz.

The strength of UDR is even with complete GPS/GNSS signal loss the unit can provide continuous positioning by using inbuilt inertial sensors to estimate its location, speed etc. it requires no external input to do this. The effect from multipath is also reduced due to having inertial sensors.

The configurable CAN bus speed and address along with the supplied DBC file allows easy integration into almost any vehicle with a CAN bus.

The choice of 6 pin IP67 connector or 300mm pig tail, wide ranging input voltage and the small size and mass of the unit allows easy interface into most vehicles.

Position accuracy	CEP (50%)	2.5	m
UDR Position Error	Typical Position Error after 60 seconds of no signal	<10	%
Acquisition	Cold starts	26	s
	Aided starts	3	s
	Reacquisition	1	s
Supported GNSS Constellations	GPS/QZSS L1 C/A		
	GLONASS L10F		
	BeiDou B1I		
	Galileo E1B/C		
Number of concurrent GNSS	3		
Position/COG/Speed Update Rate		20	Hz
UDR Inertial Sensors	accelerometers	+4	g
	gyros	250	deg/s

Environment	Operating temperature	-20 to +80	°C
	Dust and Water Ingress	IP65	
Mechanical Shock (Max Values)	Duration < 200µs	10000	g
	Duration < 1ms	2000	g
	Free Fall Distance	1.8	m

Mass		30	grams
Dimensions	Height x Width x Length	22x40x45	mm

CAN [1]	Baud Rates	1000, 500, 250	kbps
	Address Range[2]	1 (0x01) to 2042 (0x7FA). Default = 0x310	decimal (Hex)

Power	Voltage Range	9-14	V
	Current (Sleep)	110 (10mA)	mA @ 12V
Input Pins	Voltage Range	2-28	V

Cable Variant (standard is 300mm in length)		
AWG	26	
Wire Spec	Raychem 55	
Cable Jacket	TE Flame Retardant -75 to +150°C	
OD	3.1mm +-0.1mm	
Connector Variant		
On Unit	B06B-JWPF-SK-R	
Mating [7]	06R-JWPF-VSLE-D	
Crimp	SWPR-001T-P025	
Pin Outs		
Wire Colour	Pin No.	Function
Brown	1	Not Used
Red	2	Supply Voltage
Black	3	Ground
Green	4	CAN High
White	5	CAN Low
Yellow	6	Factory Reset [8]

[1] The default settings are 1000kbps and start address 768 (0x310), the unit has no CAN termination.

[2] The unit uses 5 CAN addresses which are in consecutive order from the address that the unit is set to.

[3] This connector is not supplied with the unit.

[4] By default this mode is switched off, if it is enabled connect this pin to 2.5v to supply voltage to wake unit.

[5] To reset the unit to factory settings pull this from 2.5v to supply voltage on unit power up.