2D Debus & Diebold Meßsysteme GmbH, Alte Karlsruher Str. 8, D-76227 Karlsruhe
Tel.: +49(0)721 94485-0 Fax.: +49(0)721 94485-29

BC-GPS12_3A-000 Small sized, low power, dynamic GPS-module

Key Features:

- *High quality GPS receiver with smallest dimensions*
- *Update rate 12.5 Hz*
- *Integrated 3 Axis accelerometers ± 16G*
- *WAAS and EGNOS mode available*
- *Different dynamic modes available:*
  - *Base: stationary applications*
  - *Human: applications with low accelerations*
  - *Car: automotive applications*
  - *3D_1G: race applications*
  - *3D_2G: airborne applications*
  - *Boat: applications at sea*

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BC-GPS12_3A-000

Small sized, low power, dynamic GPS-module

Technical specifications

GPS-Module		
Update rate	Hz	12.5
Available CAN-channels		
Altitude	m	0.01
Course	deg	0.01
Speed(V_Sat)	km/h	0.01
Latitude(decimal)	deg	0.0000001
Longitude(decimal)	deg	0.0000001
ValidSat		0.1
SSHH	sec	0.01
HHMM	h/min	0.01
MMDD		0.01

Internal accelerometers		
Range	G	±16
Cut off filter	Hz	20

GPS-antenna	
Refer to AC-GPSANTx-000	

Electrical characteristics		
Supply voltage	V	8 - 30
Current consumption	mA	55

Mechanical characteristics		
Aluminium Housing		
Dimensions	mm	44 x 34x 15
Weight	g	54
Cable		
Wire cross section		4 x AWG26
Type		Raychem EPD
Length	mm	400
Connector type		
GPS		
SMA connector		SMA female
CAN		
Standard		Binder 712, 5PM
Other options		On request

Environmental data		
Ambient operating range	°C	-25 to +75
Humidity	%	5 to 95
Protection class:	IP	67

Vibration resistance		
Shock	G	40
During time period of	ms	10
Vibration tested @	G	12
Measured with	Hz	1000

Ordering information	
To order this product use 2D	
Article number BC-GPS12_3A-000	

CAN-identifiers (default)

CAN-ID	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
0x400	ACC_X		ACC_Y		ACC_Z		T_ACC	
0x790	V_Sat		ValidSat		HHMM		Course	
0x791	Lat_dez				Lon_dez			
0x792	Altitude				MMDD		SSHH	
0x793	HorAccu		VerAccu		SpAccu		CourAccu	
0x794	Speed_N		Speed_E		Speed_D		Speed_3D	
0x795	HDOP		GDOP		PDOP		VDOP	
0x796	Year	Month	Day	Hour	Minute	Second	hSec	n.u.
0x797	Latitude				Longitude			
0x798	A_Lat		A_Lon		Banking		Yawrate	
0x799	COUNT#39		CPU_Load					

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BC-GPS12_3A_V2-000 Small sized, low power, dynamic GPS-module

Formulas to calculate physical values

Description	CAN ID	Channel		Formula	Offset	Dimension
Speed over ground (2 dimensional)	0x790	V_Sat	=	0.01*digits	+ 0	[km/h]
Validity & number of satellites & horizontal dilution of precision	0x790	ValidSat	=	0.0001*digits	+ 0	
Hour/minutes	0x790	HHMM	=	0.01*digits	+ 0	
Vehicle course (=direction)	0x790	Course	=	0.01*digits	+ 0	
Latitude(decimal)	0x791	Lat_dez	=	0.0000001*digits	+ 0	[deg]
Longitude(decimal)	0x791	Lon_dez	=	0.0000001*digits	+ 0	[deg]
Altitude	0x792	Altitude	=	0.01*digits	+ 0	[m]
Month/Day	0x792	MMDD	=	0.01*digits	+ 0	
Seconds/hundreds of seconds	0x792	SSHH	=	0.01*digits	+ 0	
Horizontal accuracy	0x793	HorAccu	=	0.001*digits	+ 0	[m]
Vertical accuracy	0x793	VerAccu	=	0.001*digits	+ 0	[m]
Speed accuracy	0x793	SpAccu	=	0.036*digits	+ 0	[km/h]
Course accuracy	0x793	CourAccu	=	0.01*digits	+ 0	[°]
North velocity(speed north-south)	0x794	Speed_N	=	0.036*digits	- 1179.6121	[km/h]
East velocity(speed east-west)	0x794	Speed_E	=	0.036*digits	- 1179.6121	[km/h]
Down velocity (speed down-up)	0x794	Speed_D	=	0.036*digits	- 1179.6121	[km/h]
Geometrical speed(3 dimensional)	0x794	Speed_3D	=	0.036*digits	+ 0	[km/h]
Horizontal dilution of precision	0x795	HDOP	=	0.01*digits	+ 0	
Geometric dilution of precision	0x795	GDOP	=	0.01*digits	+ 0	
Position dilution of precision	0x795	PDOP	=	0.01*digits	+ 0	
Vertical dilution of precision	0x795	VDOP	=	0.01*digits	+ 0	
Year	0x796	Year	=	1.0*digits	+ 2000	
Month	0x796	Month	=	1.0*digits	+ 0	
Day	0x796	Day	=	1.0*digits	+ 0	
Hour	0x796	Hour	=	1.0*digits	+ 0	
Minute	0x796	Minute	=	1.0*digits	+ 0	
Second	0x796	Second	=	0.25*digits	+ 0	
Hundreds of seconds	0x796	hSec	=	1.0*digits	+ 0	
Latitude(degree)	0x797	Latitude	=	0.0000001*digits	+ 0	[°]
Longitude(degree)	0x797	Longitude	=	0.0000001*digits	+ 0	[°]
Acceleration Latitude	0x798	A_Lat	=	0.0010*digits	- 32.767	[m/s^2]
Acceleration Longitude	0x798	A_Lon	=	0.0028*digits	- 91.0194	[m/s^2]
Declination of vehicle	0x798	Banking	=	0.1*digits	- 3276.7	[°]
Yaw rate of vehicle	0x798	Yawrate	=	0.01*digits	- 327.67	[°/s]

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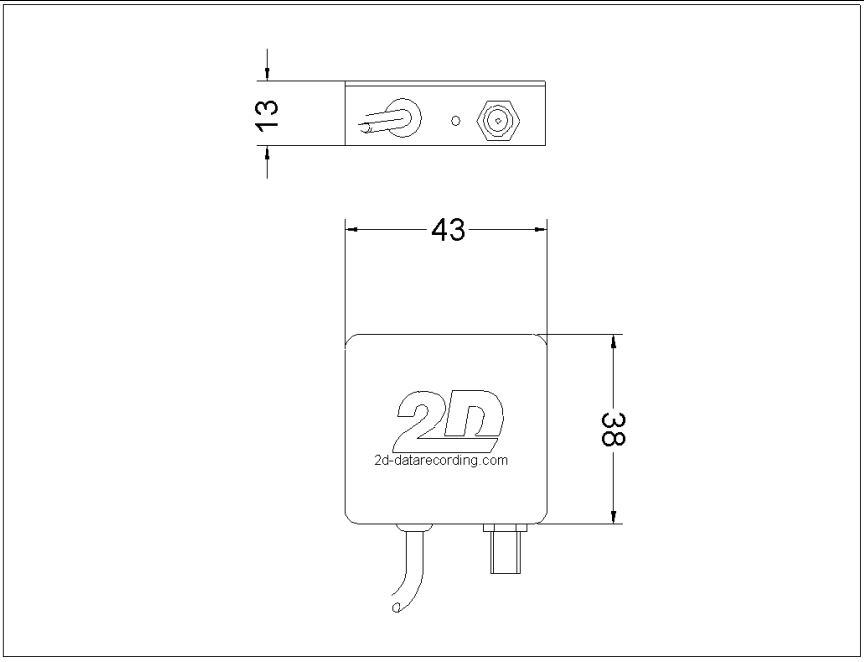
Dimensions



Connector layout

Binder 712, 5PM

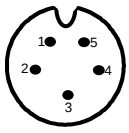
Pin	Name	Description	Colour
1	CAN-H	CAN BUS high	white
2	CAN-L	CAN BUS low	green
3	GND	Ground	black
4	n.c.	Not connected	-
5	Vext	Power IN (8-18V)	red

SMA connector

Pin	Signal
Outline/Shield	Ground

Connector type

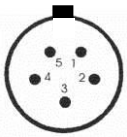
Plug at module



Binder 712 5PM
Front view

SMA, female
Front view

Mating plug



Binder 712 5PF
Front view

SMA, male
Front view

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