

WN40B-CORS 用户手册



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WN40B-CORS四系统十一频高精度板卡

1. 产品说明

WN40B-CORS:面向测量测绘和形变监测等行业领域,为设备集成厂家四系统十一频率(BDS B1/B2/B3 + GPS L1/L2/L5 + GLONASS L1/L2 + Galileo E1/E5a/E5b)基站版板卡。

- 全面兼容国外主流板卡,如NovAtel OEM628、Trimble BD970
- 在原有WN308三系统八频板卡上通过软件升级即可实现带有Galileo的四系统十一频点信号的接收
- 以FPGA方案,支持客户定制和升级服务,支持北斗全球信号
- 性能指标上建立自身优势,性能不低于国外主流板卡技术指标
- 最小化顾客转换工作复杂度,提供完全继承的软件环境和战略

2. 产品特点

2.1 产品特性

- 四系统十一频点
GPS L1/L2/L5 + GLONASS L1/L2 + BD2 B1/B2/B3 + Galileo E1/E5a/E5b
- 全面兼容国外主流板卡
- 灵活的 RS232、UART、USB、SD卡、以太网或 CAN 接口
- 支持客户定制和升级服务,支持北斗全球信号

2.2 适用领域

- 对定位、授时精度和可靠性要求较高的电力、通讯行业
- 航空、航海、车载等各类高精度导航定位、测量领域
- 面向测量测绘和形变检测等行业领域

2.3 技术指标

2.3.1 性能指标

Feature	Description
Tracking	5 degrees above the satellite tracking ability
Single Point Positioning	1.5m (L1) 1.2m(L1/L2) Horizontal
	3.0m Vertical
DGPS	Single Frequency: 0.4m Horizontal
	0.8m Vertical
TTFF	Warm:40s
	Cold:50s
	Reacquisition:1s
Data Rates	1Hz,2Hz,5Hz,10Hz,20Hz,50Hz PVT positioning outputs
	Up to 50Hz raw measurement outputs
	Various sampling rates and output
Time Accuracy	20ns
Velocity Accuracy	0.03m/s RMS
Measurement Precision	GPS BD2 GLO GLA
	L1/B1 C/A Code: 10 cm 10cm 10cm 10cm
	L1/B1 Carrier Phase: 0.5mm 1.0mm 1.0mm 1.0mm
	L2/B2 P(Y) Code: 10cm 10cm 10cm 10cm
	L2/B2 Carrier Phase: 1.0mm 1.0mm 1.0mm 1.0mm
	B3I Code: 5cm
B3I Carrier Phase: 0.5mm	

2.3.2 物理尺寸

Feature	Description
Dimensions(L x W x H)	60mm x 100mm x 11.4mm

2.3.3 电源

Feature	Description
Voltage	+3.3 VDC +5%/-3%
Power Consumption	<3W
In-Rush Power Consumption	22A for less than 30μs

2.3.4 RF 输入

Feature	Description
Antenna Connector	MMCX female, 50Ω nominal impedance
Acceptable RF level	-70dBm to -100dBm
RF Input Signal	Support GPS L1/L2/L5+BD2 B1/B2/B3+GLONASS L1/L2 +GLA E1/E5a/E5b
LNA Power Internal	+4.75 to +5.10 VDC @0-100mA(output from card)

2.3.5 外部时钟输入

Feature	Description
Connector	MMCX female
External Clock Input	Frequency:25MHz
	Input Impedance:50Ω nominal
	Input VSWR: <2.0:1
	Signal Level:0dBm minimum to+13.0dBm maximum
	Frequency Stability: ±0.5ppm maximum
	Wave Shape: Sinusoidal

2.3.6 通信接口

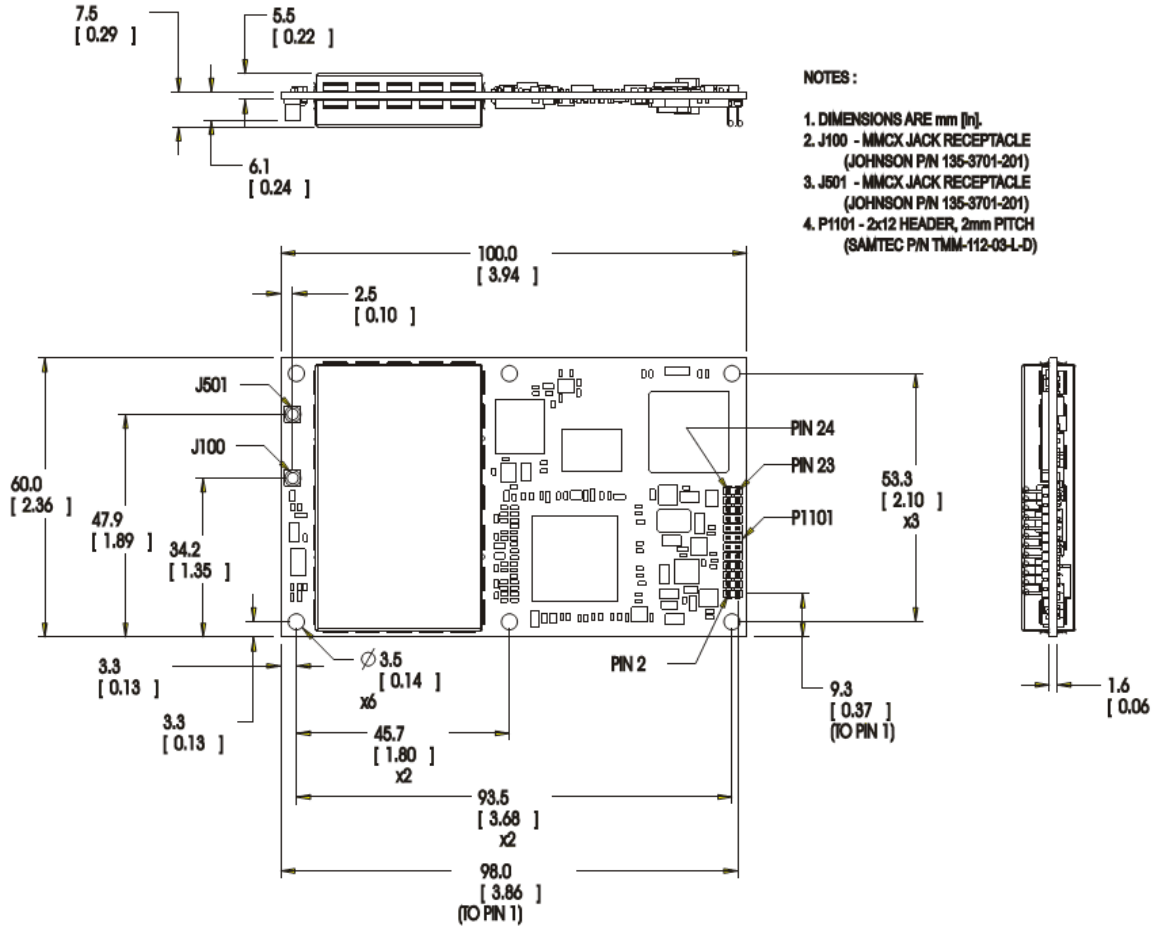
Feature	Description
Communications	1xLAN port
	1xRS-232(COM1)
	1xLV-TTL serial port(COM2)
	1xLV-TTL serial port(COM3)
	1xUSB port
Correction Data	CMR
	CMR+
	RTCM 2.X
	RTCM 3.X
	NovAtel format
Navigation Data	NMEA-0183
	RINEX
	NovAtel format
I/O Connector	2x12Header, 2mmPitch
	2x3Header, 2mmPitch

2.3.7 可靠性指标

Feature	Description
Temperature	Operating: -40°C to +85°C
	Storage: -55°C to +95°C
	Humidity: 95% non-condensing
Vibration	GJB150.16-2009, Ground Equipment
	6.2g RMS operating
	8g RMS survival
RoHS	RoHS compliant
System stability	连续运行时间:168h
MTBF	≧ 10000hours

2.4 接口特性

2.4.1 物理尺寸



2.4.2 管脚定义

Pin Nubmer	Signal	TYPE
1	GND	
2	RTK_LED	Output, 4mA, LVTTTL_3.3V
3	VARFO	Output, LVTTTL_3.3V
4	PPS	Output, 4mA, LVTTTL_3.3V
5	VCC	3.3V +/-5%
6	VCC	3.3V +/-5%
7	EVENT2/CAN1_RX/UART3_RX	Input, TTL/CMOS_3.3V
8	EVENT1	Input, TTL/CMOS_3.3V
9	ERROR	Output, LVTTTL_3.3V

10	SATELLITE_LED	Output, LVTTTL_3.3V
11	UART2_CTS/COLLECT	Input, LVTTTL_3.3V
12	RESETn	Input, Low>50ms
13	UART2_RTS/BT_RST	Output, LVTTTL_3.3V
14	UART2_RX	Input, LVTTTL_3.3V
15	COM1_CTS/BT_LED	Input, RS232
16	UART2_TX	Output, LVTTTL_3.3V
17	COM1_RTS/RADIO_LED	Output, RS232
18	COM1_RX	Input, RS232
19	GPIO0/CAN1_TX/UART3_TX	4mA LVTTTL_3.3V;
20	COM1_TX	RS232
21	USB_Dn	USB Signal (-)
22	USB_Dp	USB Signal (+)
23	GND	
24	GND	
25	MMC_CLK	SD card clock signal, 3.0V compatible
26	MMC_CMD	SD card command signal, 3.0V compatible
27	ETH_RDn	Ethernet receive signal (-)
28	ETH_RDp	Ethernet receive signal (+)
29	CENT_RD	RD magnetic center tap, 3.3V
30	ETH_TDP	Ethernet transmit signal (+)
31	ETH_TDn	Ethernet transmit signal (-)
32	CENT_TD	RD magnetic center tap, 3.3V
33	GPRS_SW	4mA LVTTTL_3.3V;
34	RADIO_SW	4mA LVTTTL_3.3V;
35	GND	
36	CAN2_RX	CAN bus data receive data. A CAN transceiver is needed Vihmin=2V, Vilmax=0.45V
37	CAN2_TX	CAN bus data transmit data. A CAN transceiver is needed Vihmin=2V, Vilmax=0.45V
38	MMC_DATA0	SD card data0, 3.0V compatible
39	MMC_DATA1	SD card command signal, 3.0V compatible
40	PWR_LED	USER GPIO
41	MMC_PWR	SD card bus power supply, 3.0V
42	GND	

43	MMC_DATA2	SD card data3 signal, 3.0V compatible
44	MMC_DATA2	SD card data3 signal, 3.0V compatible