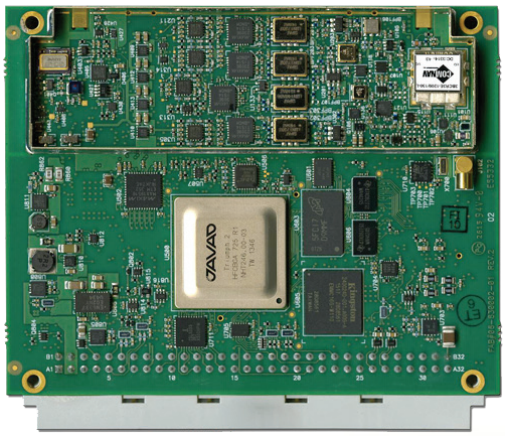
TRE-3N

GPS L1/L2/L2C/L5, Galileo E1/E5A/E5B/AltBoc
GLONASS L1/L2/L3, BeiDou B1/B2



864 GNSS channels of this board allow tracking all current and future satellite signals. TRE-3N is form, pin-out, and command compatible with the TRE-3 and TRE-G3T board.

TRE-3N OEM Board

Description	i/O	Signal name	Pin #	Pin #	Signal name	I/O	Description
Power Ground		PGND	**A1**	**B1**	PGND		Power Ground
+4.5 to +40 VDC Power Input	I	PWR_IN	**A2**	**B2**	PWR_IN	I	+4.5 to +40 VDC Power Input
Factory use only, must be left open		FUO	**A3**	**B3**	COMMSW#	I	Active Low Command Input (FN Button) *1
Reserved		-	**A4**	**B4**	KA_PWR	I	Keep-Alive Power input for Real-Time Clock (+4.5 to +40 VDC, 10µA typ)
External LED Control *2	O	LED2_RED	**A5**	**B5**	LED1_RED	O	External LED Control *2
External LED Control *2	O	LED2_GRN	**A6**	**B6**	LED1_GRN	O	External LED Control *2
Signal Ground		GND	**A7**	**B7**	USB_PWR	I	USB port Power Input line
USB port D- line	I/O	USB_D-	**A8**	**B8**	USB_D+	I/O	USB port D+ line
Serial port A TXD line	O	TXDA	**A9**	**B9**	CTSA	I	Serial port A CTS line
Serial port A RXD line	I	RXDA	**A10**	**B10**	RTSA	O	Serial port A RTS line
Serial port C: RS232 TXD line or RS422 TX- line	O	TXDC/TXC-	**A11**	**B11**	CTSC/RXC+	I	Serial port C: RS232 CTS line or RS422 RX+ line
Serial port C: RS232 RXD line or RS422 RX- line	I	RXDC/RXC-	**A12**	**B12**	RTSC/TXC+	O	Serial port C: RS232 RTS line or RS422 TX+ line
Serial port D: RS232 RTS line or RS422 TX+ line	O	RTSD/TXD+	**A13**	**B13**	TXDD/TXD-	O	Serial port D: RS232 TXD line or RS422 TX- line
Serial port D: RS232 CTS line or RS422 RX+ line	I	CTSD/RXD+	**A14**	**B14**	RXDD/RXD-	I	Serial port D: RS232 RXD line or RS422 RX- line
Signal Ground		GND	**A15**	**B15**	-		Reserved
Reserved		-	**A16**	**B16**	-		Reserved
Serial port B TXD line	O	TXDB	**A17**	**B17**	CTSB	I	Serial port B CTS line
Serial port B RXD line	I	RXDB	**A18**	**B18**	RTSB	O	Serial port B RTS line
CAN1 port CAN-H line	I/O	CAN1H	**A19**	**B19**	CAN1L	I/O	CAN1 port CAN-L line
CAN2 port CAN-H line	I/O	CAN2H	**A20**	**B20**	CAN2L	I/O	CAN2 port CAN-L line
Factory use only, must be left open		FUO	**A21**	**B21**	-		Reserved
Signal Ground		GND	**A22**	**B22**	1PPSA	O	1 Pulse Per Second output A *3
Signal Ground		GND	**A23**	**B23**	1PPSB	O	1 Pulse Per Second output B *3
Signal Ground		GND	**A24**	**B24**	EVENTA	I	Event input A *4
Signal Ground		GND	**A25**	**B25**	EVENTB	I	Event input B *4
Configurable Logic-Level I/O 0 line	I/O	GPIO0	**A26**	**B26**	GPIO1	I/O	Configurable Logic-Level I/O 1 line
Configurable Logic-Level I/O 2 line	I/O	GPIO2	**A27**	**B27**	GPIO3	I/O	Configurable Logic-Level I/O 3 line
Signal Ground		GND	**A28**	**B28**	RESET_IN#	I	Active Low Reset input *5
Ethernet port TX+ line	O	LAN_TX+	**A29**	**B29**	LAN_TX-	O	Ethernet port TX- line
Reserved		-	**A30**	**B30**	LAN_LED	O	Ethernet port control for external LED
Ethernet port RX+ line	I	LAN_RX+	**A31**	**B31**	LAN_RX-	I	Ethernet port RX- line
Active Low input for ON/OFF switch *7	I	ONOFFSW#	**A32**	**B32**	IRIG_OUT	O	IRIG port output line *6

*1. Active Low input from the FN button of the MinPad. Must be left open if not used.
*2. LED1_GRN and LED1_RED are used to control the STAT LED of the MinPad. LED2_GRN and LED2_RED are equivalent to the REC LED of the MinPad. The output is a +3.3V driver in series with 100 Ohm resistor for each LED. LEDs should be with common cathode.
*3. Voh>1,8V at 50 Ohm load.
*4. Internal pull-up 5 kOhm to +3.3V
*5. Connect to ground to activate. Internal pull-up 2 kOhm to +3.3V.
*6. AM sine-wave signal; 2.1Vp-p (Mark), 0.7Vp-p (Space).
*7. Active Low input which is equivalent to ON/OFF button of the MinPad. After abnormal turn off because of external power failure, the boards turn on automatically when external power is restored.

TRE-3N OEM Board

Tracking Features

- Total 864 channels: all-in-view
- GPS: C/A, L1C (P+D), P1, P2, L2C (L+M), L5(I+Q)
- GLONASS: C/A, L2C, P1, P2, L3 (I+Q)
- Galileo: E1 (B+C), E5A (I+Q), E5B (I+Q), AltBoc
- BeiDou: B1, B1-2, B1C(P+D), B5A (I+Q), B2, B5B (I+Q)
- QZSS: C/A, L1C (P+D), L2C (L+M), L5 (I+Q), SAIF
- SBAS*: L1, L5
- IRNSS L5
- In-Band Interference Rejection
- Advanced Multipath Reduction
- Fast acquisition channels
- High accuracy velocity measurement
- Almost unlimited altitude and velocity(for authorized users)

Data Features

- Up to 100 Hz update rate for real time position and raw data (code and carrier)
- 10 cm code phase and 1 mm carrier phase precision
- IEEE 1588 protocol support
- Hardware Viterbi decoder
- RTCM SC104 versions 2.x and 3.x Input/Output
- NMEA 0183 versions 2.x and 3.0 Output
- Code Differential Rover
- Code Differential Base
- Geoid and Magnetic Variation models
- RAIM
- Different DATUMs support
- Output of grid coordinates

Data Storage

- Up to 16 GB of onboard non-removable memory for data storage

Input/Output

- Two high speed RS232 serial ports (up to 460.8 Kbps)
- Two high speed configurable RS232/RS422 serial ports (up to 460.8 Kbps)
- High speed USB 2.0 device port (480 Mbps)
- Full-duplex 10BASE-T/100BASE-TX Ethernet port
- Two CAN 2.0 A/B ports
- IRIG timecode output A134, A137, B124, B137
- Two 1 PPS outputs synchronized to GPS, GLONASS or UTC
- Two Event Marker inputs
- External Reference Frequency Input/Output
- MinPad interface: Four external LED drivers, ON/OFF control and External Command inputs
- Four Configurable Logic-Level GPIO ports V=3.3V

Electrical

- On-board power supply accepts any unregulated voltage between +4.5 to +40 Volts
- Keep-Alive Power input accepts any unregulated voltage between +4.5 to +40 Volts
- The central pin of the antenna connector outputs +5 VDC to power LNA. The sourced current is 0.12 A max.
- Power consumption: 4.5 Watt

Environmental

- Operating Temperature: -40°C to +80°C
- Storage Temperature: -40°C to +85°C
- High shock and vibration resistance

Physical

- Dimensions: 3.9 x 3.1 inches (100x80 mm)
- Weight: 0.19 lbs (87 g)
- Digital connector: 64-pin DIN41612 type B Right Angle, AMP p/n 536052-5.
- RF connectors: MMCX Jack, edge mount, AMPHENOL, P/N 908-22100
- J101 is GNSS antenna input connector.
- J102 is Calibrator Out;
- J401 is External Reference Frequency connector.
- Reference oscillator output with frequency values 5, 10, 20 MHz (all sinlike) (about 0.5Vpp@50 Ohm load).

* US WAAS, European EGNOS, Russian SDCM, Indian GAGAN, Japanese MSAS, and similar future satellite systems

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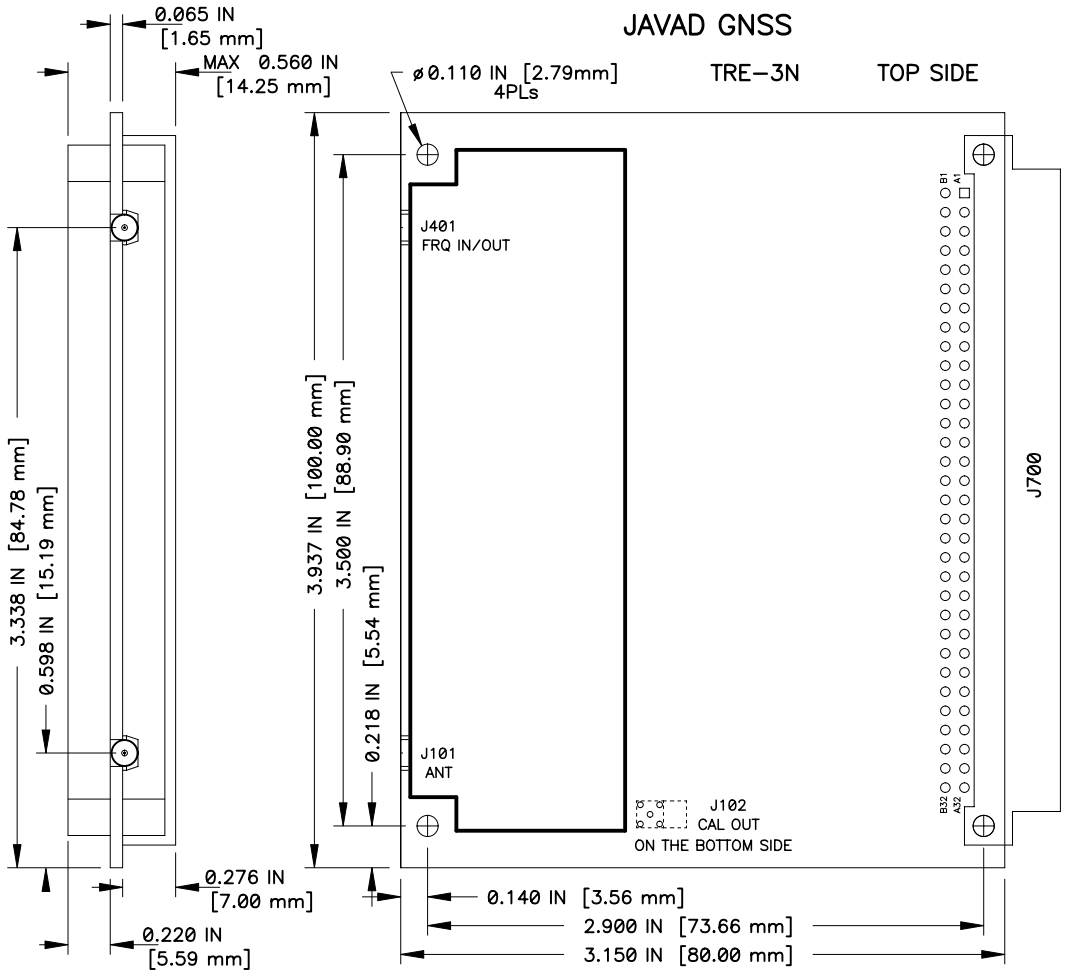

Specifications are subject to change without notice