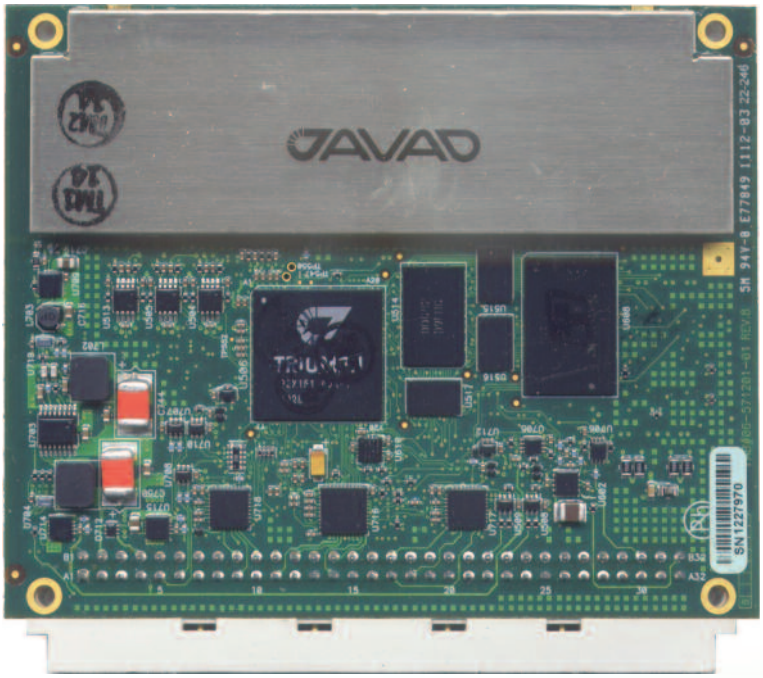
TRE-G3T

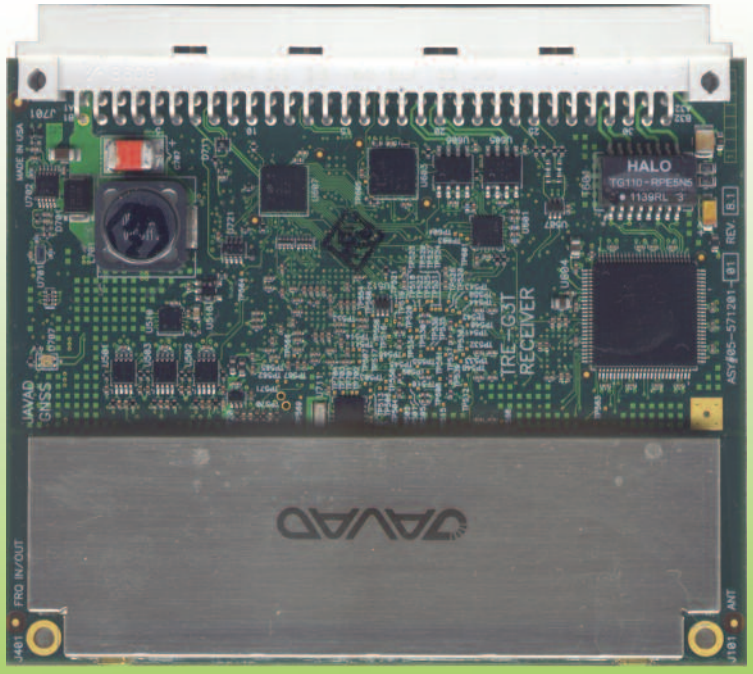
GPS L1/L2/L2C/L5
Galileo E1/E5A/E5B, GLONASS L1/L2/L3



TRE-G3T OEM board is based on our TRIUMPH Technology implemented in our TRIUMPH Chip. For the first time in the GNSS history we offer up to 100 Hz RTK. The TRE-G3T board includes the true Galileo option.

The on-board power supply on TRE-G3T OEM board accepts any voltage from +4.5 to +40 volts and delivers clean filtered voltage where needed. This eliminates the risk of power contamination (ripples) that can be created when clean power is generated elsewhere and delivered to the board via cables.

TRE-G3T board also includes drivers for four LEDs, ON/OFF and function button controllers. In addition, the board comes with large amount of flash for data storage.



The CAN interface in TRE-G3T board is provided complete with all associated hardware and firmware, not just the CAN bus. The same is true with all the serial RS232/RS422 ports in our board. Simply stated, additional functions are not needed to incorporate any of our TRE-G3T OEM board in most applications.

In addition to timing strobes and event markers, the TRE-G3T OEM board includes the option of complete IRIG timing system.

TRE-G3T OEM Board

REV. 5+

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
Signal Ground		GND	**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.

Tracking Features

- Total 216 channels: all-in-view
- GPS C/A, P1, P2, L2C (L+M), L5 (I+Q)
- Gallileo E1 (B+C), E5A (I+Q), E5B (I+Q), AltBoc*
- GLONASS C/A, L2C, P1, P2, L3 (I+Q)*
- QZSS C/A, L1C(I+Q), L2C (L+M), L5 (I+Q), SAIF
- BeiDou B1, B2
- SBAS L1, L5
- 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
- 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 2048 MB of onboard non-removable memory for data storage (up to 4096MB on request)

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
- 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 Lodic-Level GPIO ports
  V=3.3V
  VOL Output Low voltage: 0.4 Vmax; IOL = 8 mA
  VOH Output High voltage: 2.4Vmin; IOH = -8 mA
  VIH Input voltage (High): 2.0Vmin
  VIL Input voltage (Low): 0.8Vmax

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 0.1 A max.
- Power consumption: 3.6 Watt

Environmental

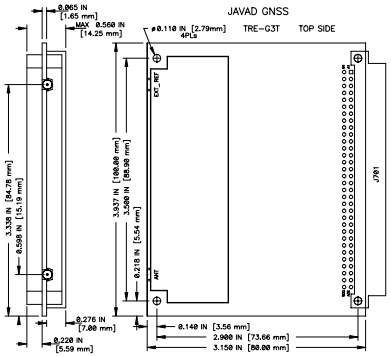
- Operating Temperature: -40°C to +80°C
- Storage Temperature: -40°C to +85°C
- High shock and vibration resistance

Physical

- Dimensions: 100x80 mm
- Weight: 77 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. The central pin of this connector supplies +5V voltage for LNA with sourced current up to 0.1A.
J401 is External Reference Frequency connector. Analog reference clock input (0.6Vpp to 3Vpp, 5/10/20MHz). This input can be configured as internal reference oscillator output with frequency values: 5(meander)/10(meander)/20(sinlike)MHz**(about 0.5Vpp@50 Ohm load).

** From Rev.6 and later all these frequencies are sinlike



*Galileo E5B/AltBoc and GLONASS L3 options available from Rev.7 and later only.

Specifications are subject to change without notice.

JAVAD GNSS

www.javad.com

Rev. 1.1 August 29, 2013