



# TR-G2T

GPS L1/L2/L2C/L5  
Galileo E1/E5A

TR-G2T 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 TR-G2T board tracks GPS /L2/L2C/L5 and Galileo E1/E5.

The on-board power supply on TR-G2T 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. TR-G2T 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 TR-G2T 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 TR-G2T OEM board in most applications.

In addition to timing strobe and event marker, the TR-G2T OEM board includes the option of complete IRIG timing system.



Description	I/O	Signal Name	Pin #	Pin #	Signal Name	I/O	Description
Power Ground		PGND	1	2	PGND		Power Ground
+4.5 to +40 VDC Power Input	I	PWR_IN	3	4	PWR_IN	I	+4.5 to +40 VDC Power Input
Keep-Alive Power Input for Real-Time Clock (+4.5 to +40 VDC, 10µA typ)	I	KA_PWR	5	6	COMMSW*	I	Active Low Command Input (FN Button) *1
Active Low input for ON/OFF switch *2	I	ONOFFSW*	7	8	FUO		Factory use only, must be left open
Active Low Reset input *3	I	RESET_IN*	9	10	GND		Signal Ground
Serial port A CTS line	I	CTSA	11	12	TXDA	O	Serial port A TXD line
Serial port A RTS line	O	RTSA	13	14	RXDA	I	Serial port A RXD line
Signal Ground		GND	15	16	CTSB/RXB+	I	Serial port B: RS232 CTS line or RS422 RX+ line
Serial port B: RS232 TXD line or RS422 TX- line	O	TXDB/TXB-	17	18	RTSB/TXB+	O	Serial port B: RS232 RTS line or RS422 TX+ line
Serial port B: RS232 RXD line or RS422 RX- line	I	RXDB/RXB-	19	20	LED1_GRN	O	External LED Control *4
External LED Control *4	O	LED1_RED	21	22	LED2_GRN	O	External LED Control *4
External LED Control *4	O	LED2_RED	23	24	IRIG_OUT	O	IRIG port output line *5
USB port Power Input line	I	USB_PWR	25	26	GND		Signal Ground
USB port D+ line	I/O	USB_D+	27	28	USB_D-	I/O	USB port D- line
1 Puls Per Second output *6	O	1PPS	29	30	GND		Signal Ground
Event input *7	I	EVENT	31	32	GPIO0	I/O	Configurable Logic-Level I/O 0 line
Configurable Logic-Level I/O 1 line	I/O	GPIO1	33	34	GND		Signal Ground
CAN port CAN-H line	I/O	CANH	35	36	CANL	I/O	CAN port CAN-L line
Serial port D: RS232 RTS line or RS422 TX+ line	O	RTSD/TXD+	37	38	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+	39	40	RXDD/RXD-	I	Serial port D: RS232 RXD line or RS422 RX- line

\*1. Active Low input from the FN button of the MinPad. Internal pull-up 10 kOhm to +3V. Must be left open if not used.

\*2. Active Low input which is equivalent to ON/OFF button of the MinPad. Internal pull-up 10 kOhm to +3V. After abnormal turn off because of external power failure, the boards turn on automatically when external power is restored

\*3. Connect to ground to activate. Internal pull-up 2.2 kOhm to +3V.

\*4. 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 +3V driver in series

with 100 Ohm resistor for each LED. LEDs should be with common cathode.

\*5. AM sine-wave signal; 2.1Vp-p (Mark), 0.7Vp-p (Space).

\*6. Voh > 2.0V (typ) at 50 Ohm load.

\*7. Internal pull-up 5 kOhm to +3V

Digital connector: Micro Header, 2x20 pos, 0.050" pitch. Samtec p/n FTSH-120-01-L-DV-K-A. RF connector: MMCX Jack, edge mount. Amphenol p/n 908-22100. The central pin of the connector is power supply for LNA, +5 VDC with sourced current up to 0.1A.

## Tracking Features

- Total 216 channels: all-in-view
- GPS L1/L2/L2C/L5
- Galileo E1/E5A
- SBAS
- 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 256MB of onboard non-removable memory for data storage

## Input/Output

- High speed RS232 serial port (up to 460.8 Kbps)
- Two high speed configurable RS232 or RS422 serial ports (up to 460.8 Kbps)
- Full speed USB device port (12 Mbps)
- CAN interface
- IRIG timecode output
- One Event Marker input
- One 1 PPS output synchronized to GPS or UTC
- MinPad interface: Four external LED drivers, ON/OFF control and External command inputs
- Two Configurable Logic-Level GPIO ports

## Electrical

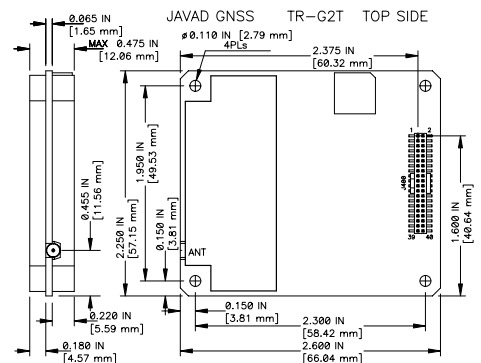
- On-board power supply accepts any unregulated voltage between +4.5 to +40 Volts
- Keep-Alive Power input accepts any unregulated voltage between +4.5 to +40 Volts for Real Time Clock
- Power consumption: 1.6 Watt (typ)

## Environmental

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

## Physical

- Dimensions: 57x66 mm
- Weight: 34 g
- Connectors: 40 pins for digital, MMCX for antenna



Specifications are subject to change without notice.



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