



TY-VGPS-20/100-V3

- ▶ Position, speed and displacement module
- ▶ 20/100 Hz GPS receiver
- ▶ Supports differential GPS (SBAS) and GLONASS as a standard
- ▶ GPS or IRIG timing, 8x DIO, 1x counter, 1x AUX
- ▶ PTP / IEEE 1588
- ▶ Isolation: 350 V_{DC}



Module specifications

TY-VGPS-20/100-V3 specifications	
GPS specifications	
Supported GNSS signals	
– GPS	L1 C/A, L1C
– SBAS	L1, L5
– GLONASS ²⁾	L1 C/A
Number of channels	555
Horizontal position accuracy	
– Single point L1	1.5 m
– Single point L1/L2	1.2 m
– SBAS	60 cm
Refresh rate	
– TY-VGPS-20-V3	20 Hz
– TY-VGPS-100-V3	100 Hz
Time to first fix	
– Cold start ³⁾	<40 s (typical)
– Hot start ⁴⁾	<19 s (typical)
Signal lost recovery	
– L1	<0.5 s (typical)
– L2	<1.0 s (typical)
Time accuracy ⁵⁾	240 ns
Heading accuracy	0.1° (typical)
Velocity accuracy	<0.03 m/s RMS
Velocity limit ⁶⁾	515 m/s
GPS antenna	Incl. (5 m cable); supports GPS L1, GLONASS G1, SBAS (WAAS, EGNOS, MSAS)
Input connector GPS	SMA for GPS antenna
PTP / IEEE 1588	
IP Mode	Multicast
Protocol	UDP / IPv4; ETH
Delay mechanism	End-to-end, peer-to-peer
IP address method	DHCP

TY-VGPS-20/100-V3 specifications		
RJ-45 Ethernet		10/100 Mbit Ethernet connection; only for synchronization, no data transfer possible.
Programmable correction limit		10 ns to 500 ms
IRIG input specifications		
Supported codes		IRIG code A or B; AM or DC (A007, A127, B007, B127)
Compatibility (AM code)		0.5 Vp-p to 10 Vp-p
Compatibility (DC code)		DC level shift (edge detection); TTL / CMOS compatible
		Low: <1.5 VHigh: >3.5 V
Impedance		20 kΩ
Isolation voltage		350 V _{DC}
Connector		BNC
IRIG output specifications		
Supported codes		IRIG code B, DC (B007)
Digital I/O specifications		
Number of channels		8
Compatibility (input)		CMOS/TTL, weak pull-up 100 kΩ to +5 V
		Low: <0.8 VHigh: >2.0 V
Compatibility (output)		TTL, 20 mA
Overvoltage protection		
– Input mode		±30 V _{DC}
– Output mode		-0.5 to +5.5 V; short circuit protected
Connector		D-SUB-15 socket
Counter specifications		
Number of channels		1 advanced counter or 3 digital inputs
Counter modes	Event counting	Basic event counting, gated counting, up/down counting and encoder mode (X1, X2 and X4)
	Waveform timing	Period, frequency, pulse width, duty cycle and edge separation
	Sensor modes	Encoder (angle and linear), gear tooth with/without zero, gear tooth with missing/double teeth
Input signal compatibility		CMOS/TTL
Counter resolution		32-bit
Counter time base		80 MHz
Time base accuracy		Typical 10 ppm (HT2); 2 ppm (HT3); (defined by the backplane)
Maximum input frequency		10 MHz
Overvoltage protection		±30 V _{DC} , 50 V _{PEAK} (for 100 ms)
Sensor power supply		5 V (600 mA) and 12 V (600 mA)
Connector		On same D-SUB-15 socket as Digital I/O
AUX specifications		
Functionality		Camera trigger, trigger input/output, acquisition clock and programmable clock output
Compatibility (input)		LVTTTL
Compatibility (output)		LVTTTL, 10 mA
Overvoltage protection		±20 V _{DC}

TRION-VGPS-20/100-V3 specifications	
Connector	SMB socket
General specifications	
Typical power consumption	5 W
Temperature Range	0–50 °C
Weight	Approx. 240 g

Tab. 66: Module specifications

- 1) Typical values. Performance specifications subject to GNSS system characteristics, Signal-In-Space (SIS) operational degradation, ionospheric and tropospheric conditions, satellite geometry, baseline length, multipath effects and the presence of intentional or unintentional interference
- 3) Typical value. No almanac or ephemerides and no approximate position or time.
- 4) Typical value. Almanac and recent ephemerides saved and approximate position and time entered.