POSTG™ SPECIFICATIONS

POS TG™ IS A PRECISION MEASUREMENT SYSTEM DESIGNED TO COMPUTE TRACK GEOMETRY

Integrating inertial sensors with GPS receivers and an optical gauge measuring system (OGMS), POS TG is a highly accurate and cost effective alternative to traditional measurement technologies.

1. ACCURACY OF TRACK GEOMETRY MEASUREMENTS

Superelevation	1.0 mm
Rail Profile	1.0 mm
Curvature	1.0 mm
Change of Curvature	0.2 mm/m (0.02%)
Twist	1.0 mm
Alignment	1.0 mm
Grade	0.05%

GPS Dropout Immunity - All track geometry, navigation, and dynamics output are continuous during GPS/DGPS or RTCM dropouts. Accuracy of track geometry outputs is essentially unaffected during drop out intervals.

2. OPERATING PARAMETERS

Speed Range	near 0 to over 300 km/h
Acceleration Range	-40 g to +40 g (g = gravitational accel)
Angular Rate Range	-1000 deg/sec to +1000 deg/sec
Output Rate	user selectable
Output Distance Increment	user selectable

3. PHYSICAL

Size		Temperature Range (operating)	
IMU	17 cm X 15 cm X 13 cm	IMU	-40° C to 60° C
PCS	50 cm X 9 cm X 36 cm (19" rack mount)	PCS	0° C to 50° C
GPS Antenna	16 cm X 16 cm X 6 cm	GPS Receiver	-20° C to 55° C
GPS Antenna Cable	15 m	GPS Antenna	-55° C to +85° C
Weight			
IMU	3.0 kg	Relative Humidity	
PCS	9.1 kg	IMU	0 to 95% non-condensing
GPS Antenna	0.45 kg	PCS	10 to 80% non-condensing
Power	220/120 VAC 50/60 Hz, 100 W	GPS Receiver	0 to 95% non-condensing
		GPS Antenna	0 to 100%

4. SENSORS

Inertial

Parameter	Gyros	Accelerometers
Range	±1000 deg/sec	±40 g
Scale factor	100 ppm	1000 ppm
Bias	1.0 deg/hr	300 µg

GPS

GPS channels	72 plus 4 additional channels for SBAS/WAASE/EGNOS/MSAS Support
Update rate	10 Hz max.

5. ETHERNET INPUT/OUTPUT

Parameters	Time tag, distance traveled, track geometry output, track type classification (tangent, curved, spiral), navigation output (position, velocity, attitude), dynamics (acceleration and angular rate), navigation performance metrics, sensor data, location synchronization
Display Port	Low rate (1 Hz) UDP protocol output
Control Port	TCP/IP input for system commands
Data Port	High rate TCP/IP protocol output

6. LOGGING OUTPUT TO INTERNAL DISK DRIVE

Parameters	Time tag, distance traveled, track geometry output, track type classification (tangent, curved, spiral), navigation output (position, velocity, attitude), dynamics (acceleration and angular rate), navigation performance metrics, sensor data, location synchronization

7. DMI AND HALF GAUGE INPUT

TTL direction and distance increment pulses

Half Gauge Data

8. OTHER I/O

Location Synchroni-zation	Output hardware pulse for location synchronization to a user specified landmark
PPS	Pulse-per-second time synchronization output mark. The edge is time tagged and may be logged to file and/or output via Ethernet
Event 1 and Event 2	Input hardware pulses may be logged

9. SET-UP AND CONTROL/DISPLAY SOFTWARE

Program running under Windows™ for initial set-up, logging, and real-time display of data, performance metrics and system status.