

New Fiber Optic Gyrocompass for Tunnel

TMG-12F Series

Three fiber optic gyroscopes and three accelerometers output **Azimuth** (absolute angle, from true north), **Pitch** angle and **Roll** angle.

Solid state, strap down construction.

No moving parts.

Strong against vibration.

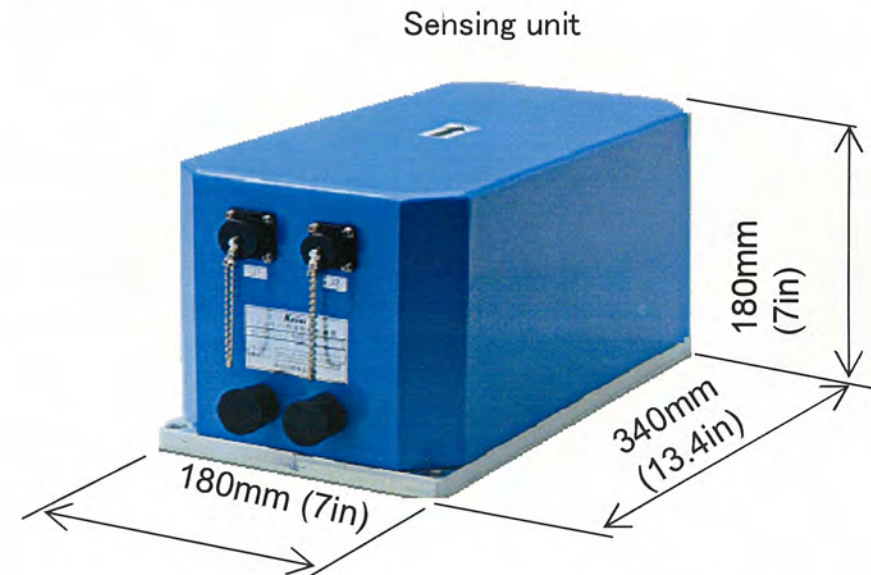
Compact, small size.

Easy to transport.

Easy to install.

Minimal maintenance.

Provides **real-time** measurement while the tunnel excavation is underway.



Technical Specifications

■ Measurable range	Azimuth	360 deg
	Pitch angle/Roll angle	±15 deg
■ Accuracy*	Azimuth	±0.2 deg secant latitude
	Azimuth settle point error	±0.8 deg secant latitude
	Pitch angle/Roll angle	±0.05 deg
	*Note: For accuracy, latitude should be set in 0.1 degree units under condition of negligible vibration and temperature variation and temperature range, 15~35°C.(Example: Tokyo 35.7 degrees latitude)	
■ Resolution		0.01 deg
■ Settling time	Azimuth	Less than 2hours from power ON
	Pitch angle/Roll angle	Immediately after power ON
■ Environmental	Housing: sensing unit	Waterproof (IP67 rating)
	power supply unit	Splashproof
	Operating temperature	-15~55°C (sensing unit) 0 ~40°C (non-sensing units)
	Humidity	95% RH or less
	Vibration	5~22.5Hz ± 1mm 22.5~100Hz 20m/s ²
	Shock	100G 6ms
■ Backup time		90 minutes
■ Power supply		100~240VAC, 50/60Hz, 1Φ

TOKYO KEIKI INC. Electronics Systems Division Sensing Control Systems Dept.

Remarks: Product may be subject to export regulations.

Head Office: 2-16-46, Minami-Kamata, Ohta-ku, Tokyo 144-8551 Japan
 Tel: +81-3-3731-2631 FAX: +81-3-3738-8670
<http://www.tokyo-keiki.co.jp>



**MICRO**
tunneling
INC

Timothy R. Coon
President

P.O. Box 7745
Boulder, Colorado 80501 USA
timco@microtunneling.com

TEL: +1-303-440-2000
FAX: +1-303-440-2777



Model: M-1000
Serial: 10000000000000000000

List of construction site of TMG-12F

No	Machine	Soil Type	Alignment	Location, Start
1	ID=78.7in EPB Shield	Silt	L= 469ft R= 98.4ft	TOKYO, Apr.2012
2	ID=78.7in Slurry	Silt	L= 275ft R=114.8	TOKYO, Oct.2012
3	ID=47.3in Mini-Shield	Sandy soil	L=7,152ft R= 65.6ft	TOKYO, Mar.2013
4	ID=26.8in Slurry	Gravel	L= 381ft R=623.4	SHIZUOKA, Jul.2013
5	ID=59.1in Mini-Shield	Gravel	L=4,921ft R= 65.6f	HIROSHIMA, Dec.2013
6	ID=78.7in Mini-Shield	Sandy soil	L=2,047ft R= 49.2ft	NAGANO, MAY.2014
7	ID=86.6in Slurry	Sandy	L=1,765ft R= 492ft	SAITAMA, Apr.2014
8	ID=70.9ft Mini-Shield	Sandy soil	L=3,540ft R= 32.8ft	CHIBA, Jun.2014
9	ID=39.4in Mini-Shield	Gravel	L=5,075ft R= 32.8ft	KANAGAWA, Jun.2014
10	ID=47.3in Mini-Shield	Granate	L=4,265ft R=154ft	FUKUOKA, Jul.2014
11	ID=39.4in Mini-Shield	Sandstone	L=4,508ft R=32.8ft	OKAYAMA, Jul.2014
12	ID=39.4in Mini-Shield	Gravel	L=2,057ft R=98.4ft	SHIGA, Sep.2014
13	ID=0.98ft Thick Mud Shield	Sandy soil	Under Planning	SHIZUOKA, Jun.2014

No.7



No.2



No.4



No.5

