

INERTIAL MEASUREMENT UNIT (IMU) TACTICAL GRADE

DynaLabs

DYN-I-8000T SERIES

DynaLabs IMUs are based on triaxial accelerometers and triaxial gyroscopes, integrated within a single housing to detect the smallest linear accelerations and angular rates.



Dynalabs IMUs enable separate analog voltage outputs for all 6 degrees of freedom (DOF). IMUs enable power supply voltage from 6 to 35 VDC. Dynalabs IMUs feature a lightweight, reliable aluminum housing with protection class IP68 and have cables with configurable lengths and connectors.



Features

- Tactical Grade IMU
- Voltage output signal
- Proven and robust silicon MEMS
- High shock and vibration rejection
- Low in-run bias
- Excellent long-term bias repeatability



Applications

- Automotive in-car navigation
- GPS-aided guidance for UAVs and ROVs, weapon launch systems
- Vehicle and personal navigation aiding
- Vehicle yaw, pitch and roll rate sensing
- Antenna stabilization and motion control
- Railway engineering

* Any combination of gyroscopes and accelerometers is possible.

GYROSCOPES

Full-scale angular velocity	(°/s)	± 75	± 150	± 300	± 900
Frequency range	(Hz)	0-150	0-150	0-150	0-150
Non-linearity (full scale)	(%)	0.06	0.06	0.06	0.06
Noise (in band)	(°/s/√Hz)	0.0075	0.0075	0.0075	0.0075
Scale factor (nominal)	(V°/s)	0.012	0.006	0.003	0.001
Scale factor var. over temp.	(%)	0.5	0.5	0.5	0.5
Bias variation with temp.	(°/s)	± 1	± 2	± 3	± 4

ACCELEROMETERS

Full-scale Acceleration	g	±2	±5	±10	±30	±50	±100
Residual Bias modeling error	mg	0.14	0.35	0.70	1.10	2.10	7.00
Long-term bias repeatability	mg	0.24	1	1	2	4	12
In run bias stability	µg	3	8	15	24	45	150
Residual Scale factor modeling error	ppm	120	120	120	120	120	120
Scale Factor Sensitivity	mV/g	1,350	540	270	169	90	27
Misalignment	mrad	10	10	10	10	10	10
Noise in band	µg/√Hz	7	7	34	54	102	340
Non-Linearity (IEEE norm)	% FS	0.3	0	0	0	0	0
Operational temp.	°C	-40;+125	-40;+125	-40;+125	-40;+125	-40;+125	-40;+125
Operating power consumption	mW	10	10	10	10	10	10



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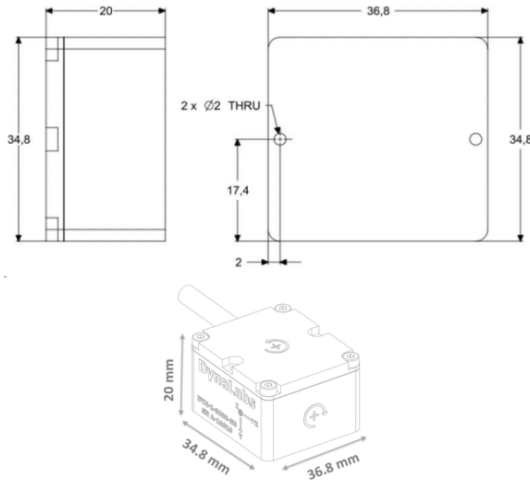
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OPTIONS:

- Custom Cable Length (5m standard cable)
- Custom Housing Material
- Custom Connector

Standard length of the integrated cable is 5 meters. But, based on request customized cable lengths are possible.

Standard version has no connector at the cable end. However, it is possible to assemble a connector during production.

CABLE CODE/PIN CONFIGURATION:

- | | | |
|-------------------|-------------|--|
| • Red | : V+ | Supply voltage |
| • Black | : Ground | Power GND |
| • X-Axis : Yellow | : Signal(+) | Positive, analog output voltage signal for differential mode |
| Purple | : Signal(-) | Negative, analog output voltage signal for differential mode |
| • Y-Axis : Blue | : Signal(+) | Positive, analog output voltage signal for differential mode |
| Green | : Signal(-) | Negative, analog output voltage signal for differential mode |
| • Z-Axis : White | : Signal(+) | Positive, analog output voltage signal for differential mode |
| Orange | : Signal(-) | Negative, analog output voltage signal for differential mode |
| | | |
| • Red | : V+ | Supply voltage 6V to 35V |
| • Black | : Ground | Power GND |
| • RX | : Brown | : Gyro Signal X-Axis: Analog output voltage signal for single-ended mode |
| • RY | : Grey | : Gyro Signal Y-Axis: Analog output voltage signal for single-ended mode |
| • RZ | : Pink | : Gyro Signal Z-Axis: Analog output voltage signal for single-ended mode |
| • White - Brown | : nc | Not connected |

Cable: 11x #28 AWG Conductors PFA Insulated, Braided Shield, TPE Jacket

Protection Level	Operating Voltage	Operating Temperature	Weight (without cable)	Housing Material
IP 68	6V - 35V	-40 °C to +100 °C	27.5 g (aluminum) 69.5 g (steel)	Aluminum or Steel



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