

# INERTIAL MEASUREMENT UNIT (IMU)

## DYN-I-8000 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 cable with configurable length and connectors.



### Features

- Accurate 6 DOF DC measurement
- Voltage output signal
- Proven and robust silicon MEMS
- High shock and vibration rejection
- Class-leading bias and noise over temperature
- Low noise – high resolution



### Applications

- Automotive in-car navigation
- Vehicle and personal navigation aiding
- Vehicle yaw, pitch and roll rate sensing
- Antenna stabilization
- 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	(°/s)	±2	±5	±10	±30	±50	±100	±200
Frequency range (±5%)	(Hz)	700	1,150	2,000	2,300	2,700	2,900	2,500
Non-linearity (full scale)	(%)	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Noise (in band)	(µg/√Hz)	9	21	40	100	180	340	680
Scale factor (nominal)	(mV/g)	1,350	540	270	90	54	27	13.5
Scale factor temp. coeff.	(ppm/°C)	120	120	120	120	120	120	120
Bias temperature coeff.	(mg/°C)	±0.2	±0.5	±1	±3	±5	±10	±20



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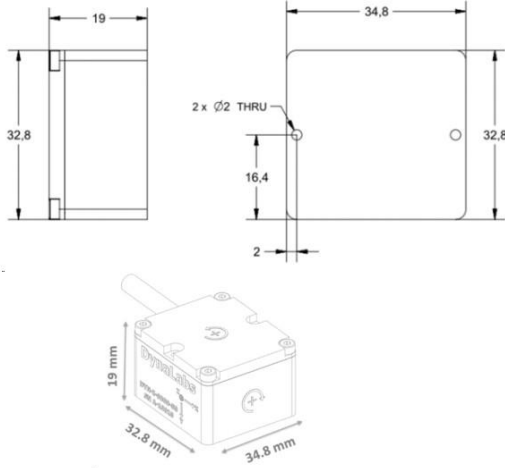
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# DynaLabs

## INERTIAL MEASUREMENT UNIT (IMU)

### DYN-I-8000 SERIES



#### 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 connector during production.

### CABLE CODE/PIN CONFIGURATION:

- |                   |               |  |
|-------------------|---------------|--|
| • Red             | : V+          | Supply voltage 6V to 35V                                     |
| • 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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