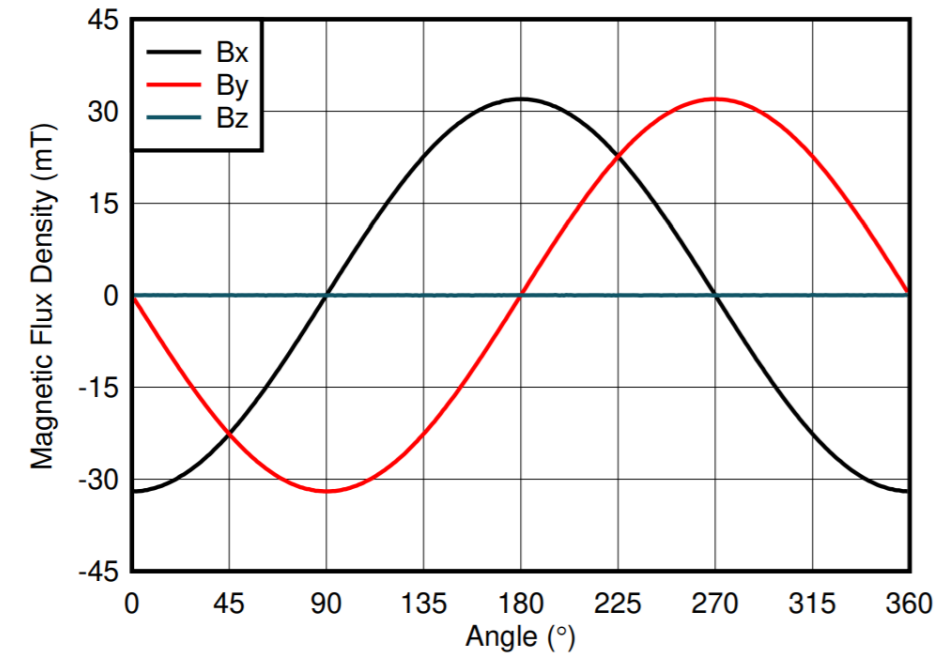
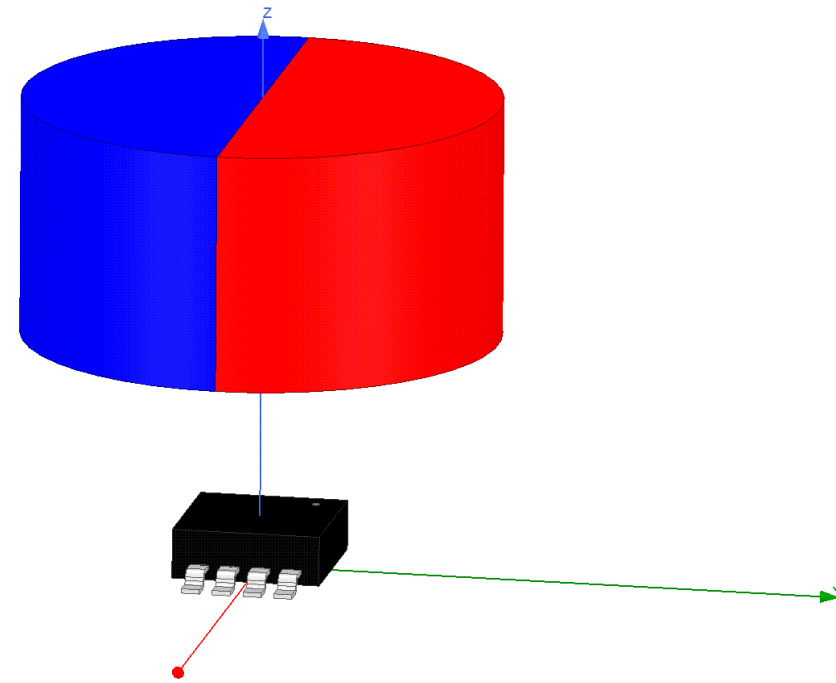
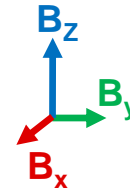
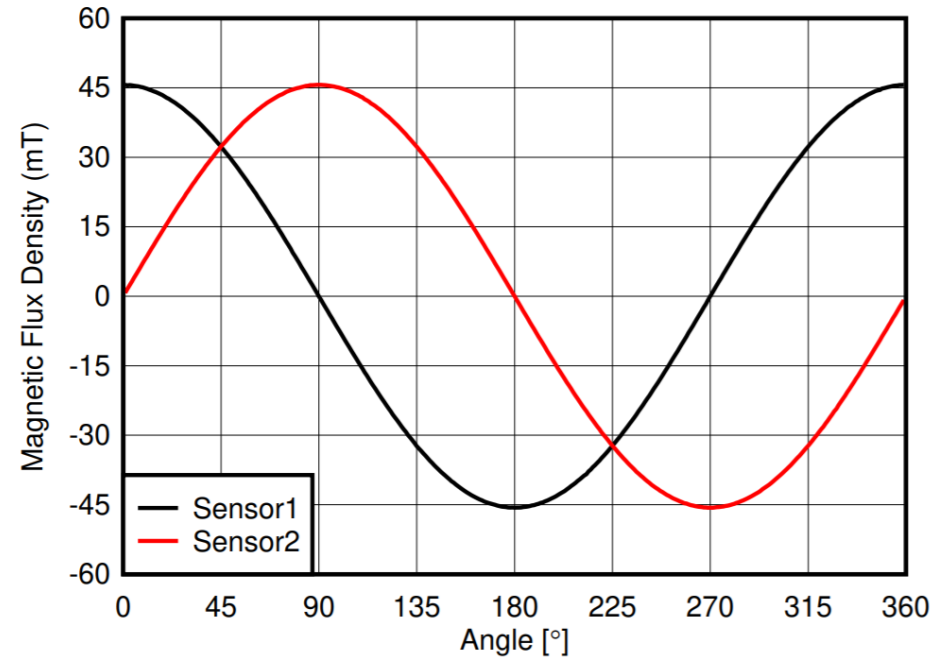
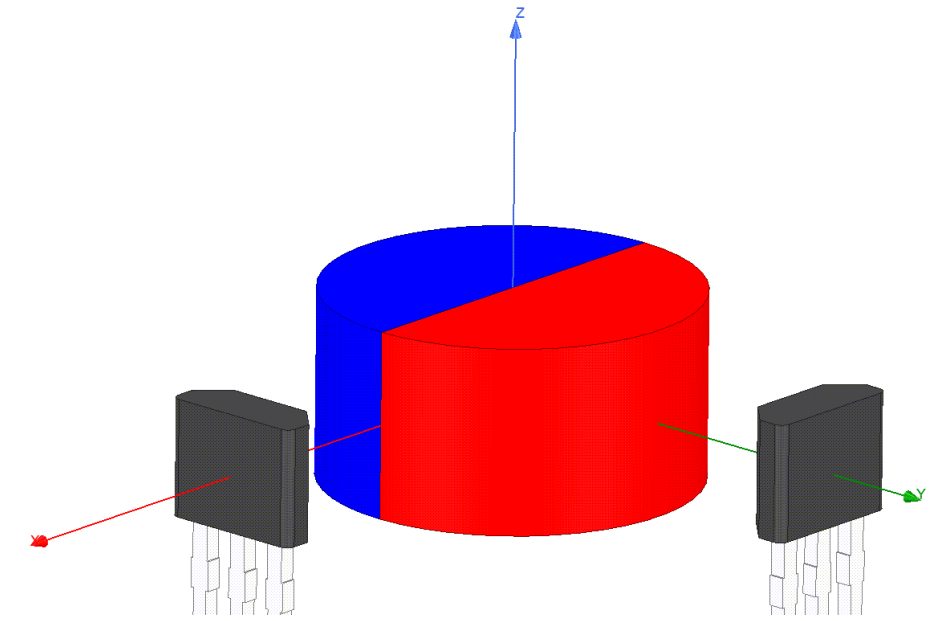


Three Dimensional (3D) Sensing Applications

TI Precision Labs – Magnetic Sensors

Presented and Prepared by Mekre Mesganaw

Angle measurement



3D angle measurement applications – HMI knobs



Thermostat Knobs



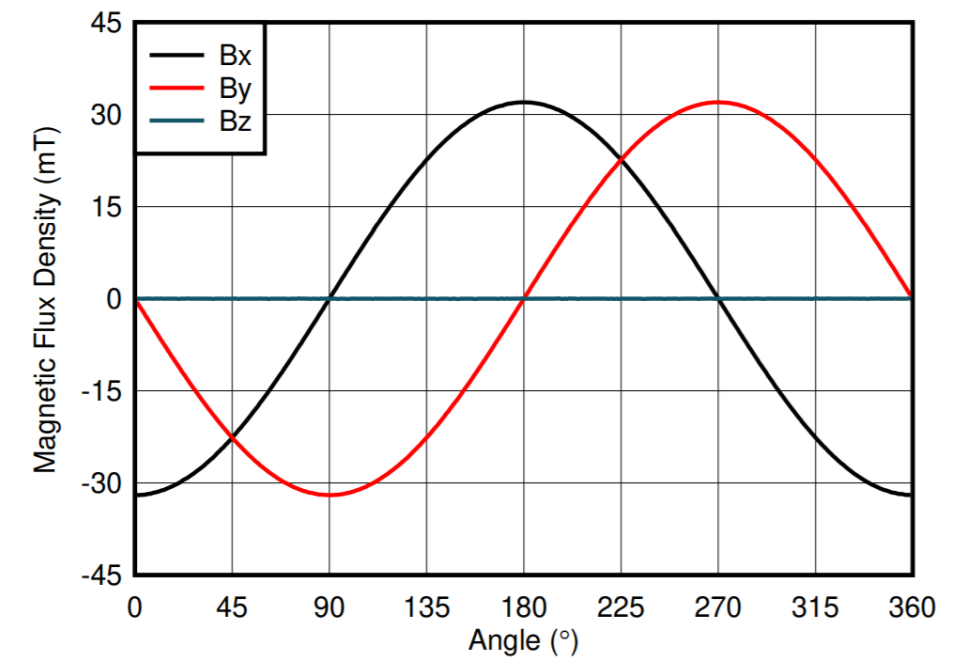
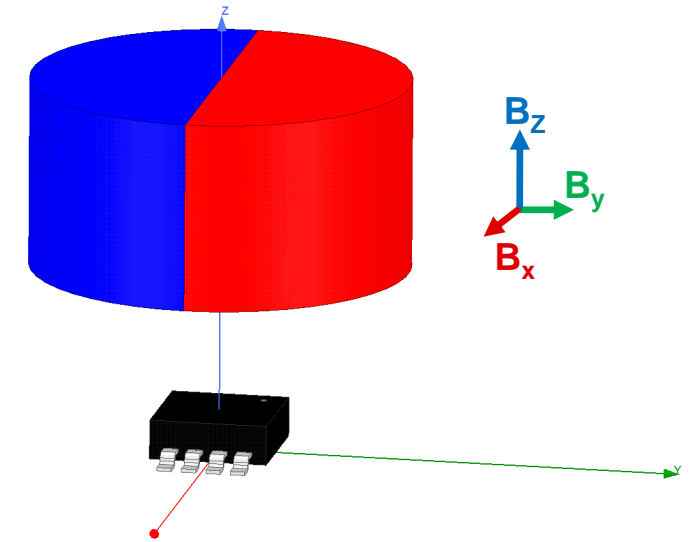
Washer/Dryer Knobs



Oven/Stovetop HMI Knobs



Car A/C, Navigation, and Radio knobs



Other 3D angle measurement applications



Image Stabilization (Drone Gimbal and Camera Lens)



Gas/Brake/Clutch Pedals



Steering Angle Detection



Motor Position Detection/Magnetic Encoder



Door/Window/Lid Angle Detection

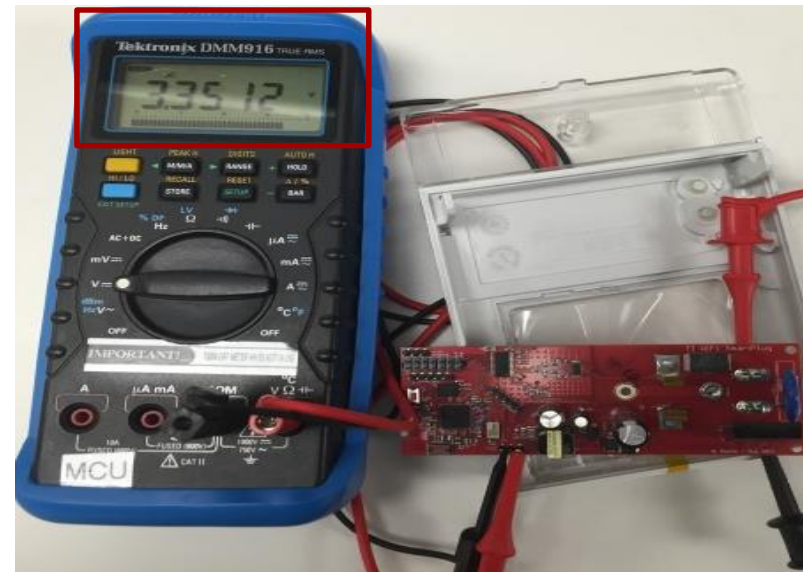
3D limit detection (electricity meter tampering)

Effect of magnetic tampering on transformers in electricity meters

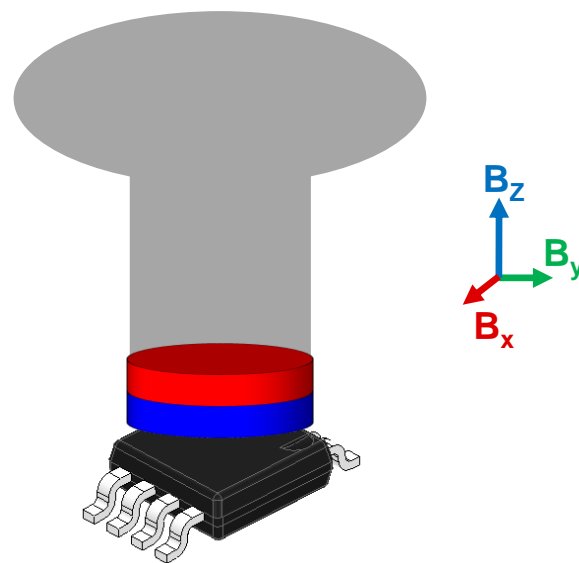


	Phase A	Phase B	Phase C	Neutral
RMS voltage	230.01V	230.00V	230.00V	
RMS current	10.001A	10.000A	10.000A	0.001A
Active power	2300.3W	2299.4W	2300.1W	0.00W
Reactive power	1.60W	1.04W	0.12W	0.00W
Apparent power	2300.2W	2299.3W	2300.1W	0.00W
Power factor	1.000L	1.000C	1.000L	0.000C

	Phase A	Phase B	Phase C	Neutral
RMS voltage	230.05V	230.03V	230.00V	
RMS current	10.000A	10.001A	2.028A	0.001A
Active power	2300.5W	2299.7W	102.86W	0.00W
Reactive power	1.40W	0.56W	454.81W	0.00W
Apparent power	2300.4W	2299.6W	466.29W	0.00W
Power factor	1.000L	1.000C	0.221C	0.000C



3D absolute position and multi-state detector



Joysticks

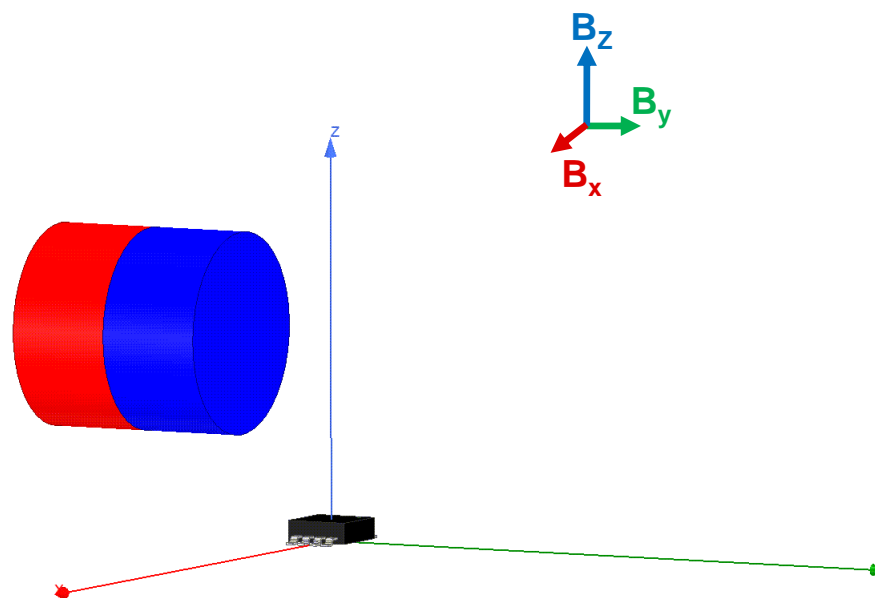


Gear sticks

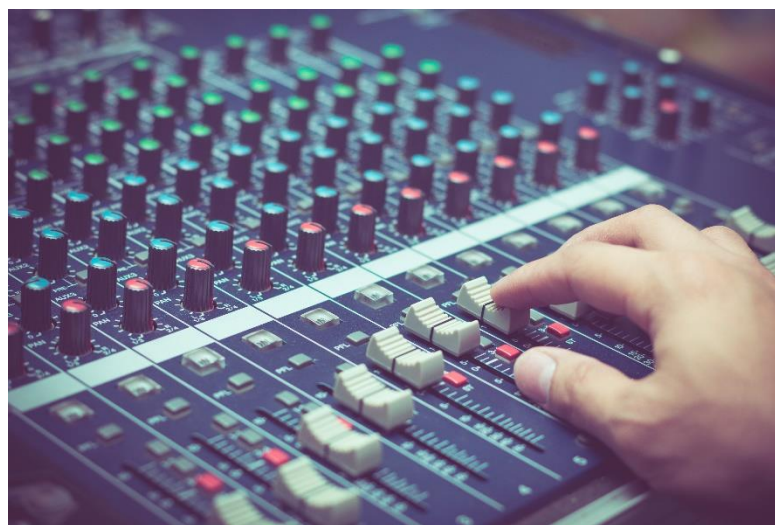


Car wiper and turn signal

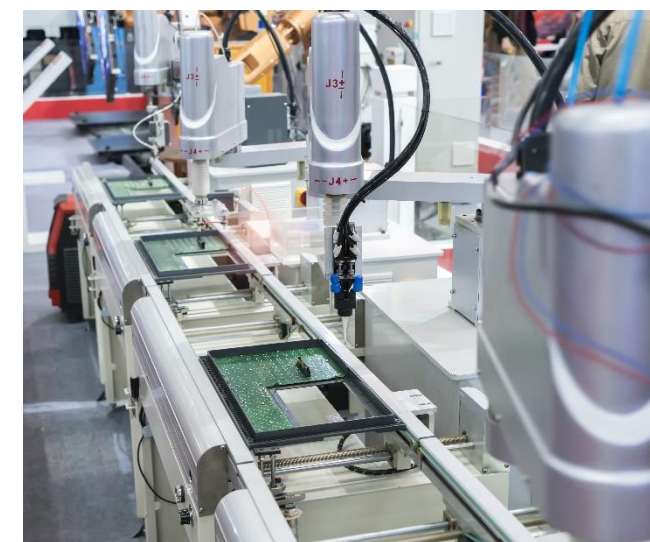
3D slide-by displacement



Cordless Power Tool Trigger



Music Mixer Fader (Slider)



Linear Movers and Actuators

To find more magnetic position sensing technical resources and search products, visit [ti.com/Halleffect](https://www.ti.com/Halleffect)