

Capacitive Proximity Sensors

DT Workshop Equipment Reference — D&T / STEM resource for school workshops | Sensors & Modules



Photo via Wikimedia Commons (Capacitiv_Proximity_Switch.jpg)

Capacitive proximity sensors detect both metal and non-metal targets - wood, plastic, liquids and powders - by sensing capacitance changes in an electric field. They suit level sensing, material presence and non-contact detection beyond metal.

Key Features

- Sensing ranges 4-30 mm
- M12-M30 cylindrical styles
- Detect most materials including liquids
- Adjustable sensitivity
- PNP and NPN outputs

Typical Uses in the Workshop

- Detect plastic and glass containers
- Sense liquid levels through tank walls
- Counting parts of mixed materials
- Presence detection in automation

Safe Operation

1. Set the sensitivity for the target material
2. Mount at the rated gap
3. Test with the actual target material
4. Adjust for false triggers
5. Verify the output state change

SAFETY NOTES

- Keep the sensor away from water in the electronics
- Check the supply voltage
- Do not mount near moving parts that snag cables
- Clean the face of build-up that causes triggers
- Check the rating for the environment

Maintenance & Consumables

- Re-tune sensitivity for material changes
- Clean the active face
- Check cables and connectors
- Verify performance with test material
- Replace worn sensors

Specification & Buying Notes

Capacitive sensors suit liquid and non-metal sensing jobs the inductive types miss. Choose adjustable sensitivity and a bracket. Buy for the specific material to be sensed.