

Membrane Keypads

DT Workshop Equipment Reference — D&T / STEM resource for school workshops | Electronics & Prototyping



Photo: Joe Haupt from USA — CC BY-SA 2.0 — via Wikimedia Commons (Vintage_Sharp_EL-8130_Super_Thinman_Electronic_Pocket_Calculator,_World's_First_Touch_Key_Calculator_With_A_Membrane_Keypad,_LCD,_Made_In_Japan,_Circa_1977_(15076181610).jpg)

A membrane keypad is a flat, sealed grid of keys arranged in matrix rows and columns, used to enter numbers and menu choices into microcontroller projects. The matrix wiring means few pins control many keys, and the sealed surface survives classroom use.

Key Features

- Sizes 3x4 and 4x4 common
- Matrix wiring: rows and columns
- Printed circuit tracks in a mylar sheet
- Adhesive backing for mounting
- Low profile and washable surfaces

Typical Uses in the Workshop

- Enter PINs, menu picks and numeric data
- Build combination lock and entry systems
- Create handheld controller panels
- Select modes on robot and display projects

Safe Operation

1. Map the pins to the rows and columns
2. Use the keypad library to read presses
3. Debounce in code for clean keypresses
4. Mount on a flat clean surface with the adhesive
5. Test every key response before final assembly

SAFETY NOTES

- Do not press with sharp objects that pierce the membrane
- Keep the keypad away from cuts and creases
- Check the ribbon connector is seated
- Do not bend the ribbon sharply
- Keep solvents away from the ink tracks

Maintenance & Consumables

- Wipe the surface clean with a soft cloth
- Check the ribbon connector each use
- Retest all keys termly
- Replace damaged pads from stock
- Store flat with the connector protected

Specification & Buying Notes

A 4x4 matrix keypad with a ribbon connector is the classroom standard. Buy a few spare pads and breakout connectors - the ribbon connectors wear first.