Kitronik

Mai-Z
The MouseBot

Technical Specifications

Stock Code: 56130 / 56135
V1.0 - Published July 2025

Dimensions:

L - 117mm
W - 105mm
H - 45mm

Status Key:

- Good Battery
- Okay Battery
- Low Battery
- Charging*
- Comms Error
- micro:bit removed
- Cliff Detected

Also On Board:

- BBC micro:bit edge connector
- Rechargeable Battery
- Speaker

* Mai-Z will charge both while switched on and switched off. While on, the Status LED indicated here will show. While off, a separate LED will indicate red while charging, and green when charged.

Onboard Sensors	• 1 x Ultrasonic Distance Sensor [Front of Mai-Z] • 3 x Multifunctional IR sensors [Underside of Mai-Z] • 2 x Motor Encoders [On rear of Motors] • 1 x Battery Level Monitor [On Mai-Z Logic Board] [Note - Battery Monitoring and Encoders not directly interactable by the user]
Multifunctional IR Sensors	Multifunctional IR Sensors: • Line Following • Cliff Detection [automatic stop when a "cliff" is detected] • Screen Free Bar Code Reading
Electromechanical Features	• N20 Motors, with Metal Gearbox • Encoders for Precise Movement [allows for constant speed regardless of battery level, as well as precision straight line and turning manoeuvres] • 33mm [Outer Diameter] Plastic Wheels with Treaded Rubber Tyres for improved grip
System LEDs	• 4 x User Programmable RGB "ZIP" LEDs • 1x "System Status" RGB LED [see key for more details] • 1x Bicolour Charging Status LED [only illuminated whilst charging, regardless of power switch position]
Audio Output	• Onboard Electromagnetic Speaker Note – this is capable of being driven by either the micro:bit or the onboard processor.
Chassis Features	• Robust drop resistant ABS Plastic Chassis [Main chassis ABS, Transparent Section MABS] • Front "scoop" moulded into the chassis for moving objects • Pen holder, for insertion of suitable permanent marker • micro:bit fully enclosed within the robust plastic chassis • Transparent window, to allow for visibility of onboard RGB LEDs and micro:bit display • Openings for A/B button on micro:bit [play/record on screen free programming board] • Large rear opening, to aid in the insertion and removal of the Micro:bit, as well as to allow easy access to the power switch and charging port.

Processor	1. BBC micro:bit – V1 or V2 2. Onboard processor [controlled by the micro:bit in normal operation, or by instruction blocks under Screen-Free Programming]

Battery	1000mAh Rechargeable Lithium Battery
Typical Battery Operating Time	Battery Life: >6 hours (Approx. – depending on use) Charging Time: 1hr [Max. - depending on battery status]
Charging Port	Standard USB-C Charging Port [Note - Mai-Z will charge regardless of the status of the power switch, and can be safely used whilst it is being charged]
Recommended Charger Specs	The charger must be capable of providing 5V, at least 1A over a USB-C Connection.
Power Switch	• Rugged on/off toggle switch – with 4mm switch lever • Inset into the chassis to avoid accidental switch on/off, inset mitigates risk of damage to the switch.

Programming Support	1. Custom Extensions for Microsoft Makecode [allows for block based programming, or JavaScript or Python under Makecode] 2. Screen Free Programming – requires the insertion of a Screen-Free Programming Board ("cheese board"), reads optical barcodes on instruction blocks. Note – the onboard processor takes control of the system under screen-free, and as such, no micro:bit is necessary.

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For more information on compliance please visit kitronik.co.uk/compliance. Children using this product should be supervised by a competent adult. The product contains small parts so should be kept out of reach of children under 3 years old.