



# Magnerscan

Handheld surface integrity and  
crack detection scanner

## USER MANUAL



Thank you for leasing the EIT Magnerscan MAG3 handheld surface integrity and crack detection scanner by EIT International. The MAG3 is our latest innovation offering an accurate method able to detect surface and sub surface defects for metallic surfaces electronically, without the use of harmful or non-food safe chemicals in a compact unit.

**Important: Please read these instructions carefully to ensure the safe and effective use of this product.**

The method has been developed by EIT International as an alternative and more cost effective testing method to dye penetrants. The system is able to detect defects by swiping the scanner across the examination surface, then viewing through the visual defect display. Sensitivity can be checked against standard cracks in an approved stainless steel test block having simulated cracks at varying depths.

The scanner heads are to be placed on the surface, in order for the system to recognise the construction material of the vessel. There are six **alarm** settings for this instrument and six **frequency** levels to ensure detection of large through defects at the lower end of the scale, and small surface defects at the higher end of the scale. In some cases, the client may only require the detection of large through defects. The alarm and frequency levels allow for the user to tailor the unit to the specific metal with a total of 36 different variations for detection.

Scan across 100% of the examination surface by swiping the probe, ensuring overlap of the scanning heads, this is to ensure 100% coverage of the vessel. See pages 4 and 5 for operating instructions.

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# Parts

- 1 MAG3
- 2 Single Probe
- 3 Stainless Steel Test Block



# Operating the MAG3

## Scanning with Single Probe



First connect the **single probe** into the side of the MAG3 Instrument

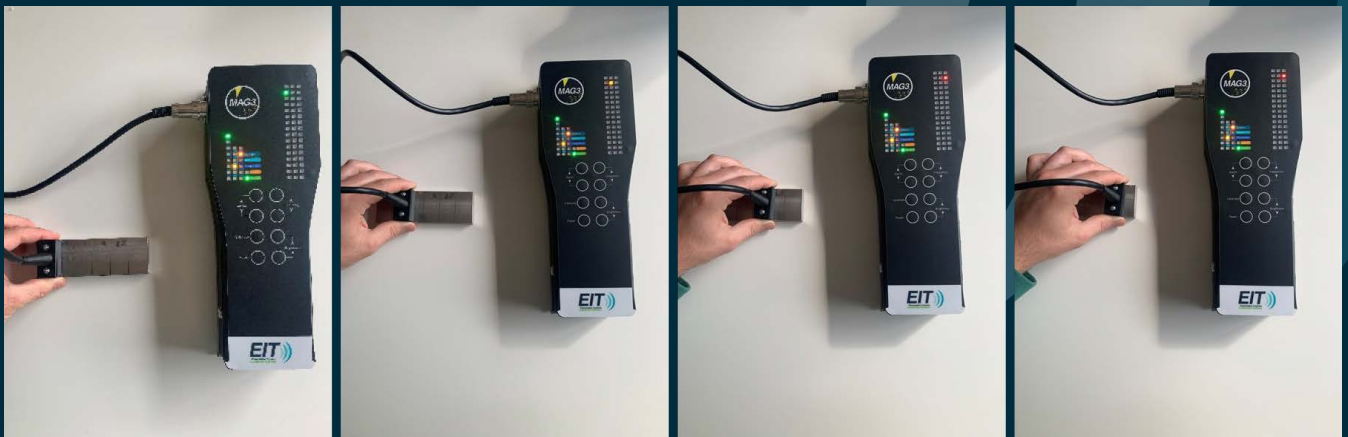


Then place the end of the probe on the **stainless-steel test block** and turn unit on. This will calibrate the unit to the metal. The **calibrate** button can also be used.



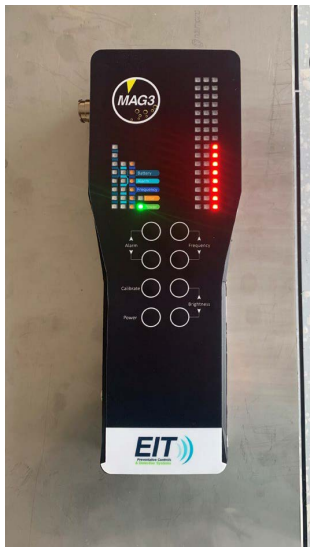
Adjust **frequency** and **alarm** level on the MAG3 to reduce noise and highlight the size of crack required to be detected. Crack size increases from left to right.

Four images below show the **green, amber and red** lights showing at varying depths of crack. As the defect size increases the MAG3 displays red indicating the largest size defect and **green** showing for the smallest size.



# Operating the MAG3

## Scanning with the main MAG3 unit



Make sure to unplug the single probe the MAG3 will automatically switch out of **single probe mode** once unplugged.

Place MAG3 on surface to be tested and turn the MAG3 on. After turn on procedure has completed scan MAG3 over the metal.

Scan across the examination surface by making contact between the scanner and the vessel surface, then move back and forth across the surface ensuring overlap so that the entire surface is scanned. A surface without defect will display similar to Figure 1. If the MAG3 encounters a defect this will appear on the display similar to Figure 2.



Figure 1



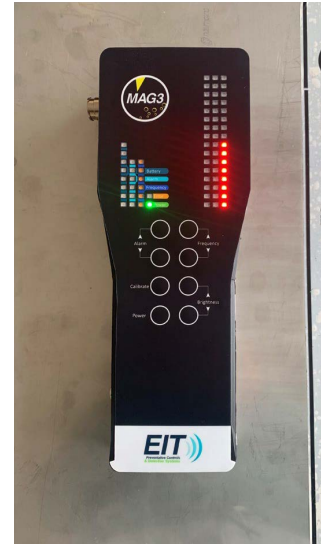
Figure 2



# Calibrating the MAG3

## Calibrating to a new surface

1. Place MAG3 on surface you would like to scan
2. Press and hold the Calibrate button for 5 seconds
3. Two amber lights will appear, this confirms the device has been calibrated to the surface
4. Release the calibrate button
5. Saving a Calibration
6. Follow steps 1-3 from the 'Calibrating to a new surface'
7. Keep the button pressed and Red LEDs will appear
8. They will count down and when the two Amber lights have appeared the calibration has been saved
9. Release the calibration button
10. The above calibration will be stored in the system memory and will be the calibration every time the unit is turned on. To override this calibration the 'Saving a Calibration' process would have to be repeated.



## FAQs

### Calibration

Does turning the MAG3 off and on lose the calibration?

Turning the MAG3 off and on will lose the 'Calibrating to a New Surface' calibration. It will not lose the Saved calibration. When the device is turned off and on it will revert back to the Saved Calibration.

### Why Save a Calibration?

MAG3 allows the user to save a calibration and each time the device turns on it will have the same calibration. This allows for uniformity when testing Metals that are the same. The MAG3 also allows the user to re-calibrate if a different metal is being tested.

## CAUTION

Modifications not expressly approved by EIT International may void the users authority to operate the equipment. The removal of any panels or components, or to open the sealed MAG3™ casing will render the equipment damaged and will void any warranty in place. Damaged MAG3™ unit through the malice of any third party will render the equipment written-off and the user will be liable for all costs associated for repair or replacement of the unit.

## HIRER'S RESPONSIBILITIES

The Hirer shall during the term of their Agreement with EIT International:

- (a) Ensure that the equipment is kept and operated in a suitable environment, used only for the purposes for which it is designed, and operated in a proper manner by fully trained, qualified and competent staff following receipt of appropriate training, examination and operating instructions and manuals provided by EIT International;
- (b) Maintain at its own expense the equipment in good and substantial repair in order to keep it in as good an operating condition as it was on the commencement date (fair wear and tear only excepted) including replacement of worn, damaged and lost parts, and shall make good any damage to the equipment;
- (c) Make no alteration to the equipment (including the removal or covering of EIT International logos, serial numbers or other information) and shall not remove any existing component(s) from the equipment;
- (d) Pay the cost of all consumable items used by the hirer in connection with the use of the equipment;
- (e) Not use the equipment for any unlawful purpose;
- (f) Ensure that at all times the equipment remains identifiable as being EIT International property;
- (g) Deliver up the equipment at the end of the rental period or on earlier termination of this agreement at such address as EIT International requires; and
- (h) Not do or permit to be done anything which could invalidate the insurances referred to in their agreement with EIT International.



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