INTEGRA

MAG and HEATMAG

Operating Instructions

137950_V02

Declaration of Conformity

INTEGRA Biosciences AG – 7205 Zizers, Switzerland

declares on its own responsibility that the devices

Description	Models
MAG/HEATMAG	**4900, 4901**
Accessories	**137710** (mains adapter), **4222** (BT module)

comply with:

EU Directives	**Scope**	**Date effective**
2014/35/EU	Low voltage directive (LVD)	20.04.2016
2014/30/EU	Electromagnetic compatibility (EMC)	20.04.2016
2012/19/EC	Waste electrical and electronic equipment (WEEE)	14.02.2014
2011/65/EC	Restriction of hazardous substances (RoHS)	03.01.2013
EU Regulations	**Scope**	**Date effective**
1907/2006	Registration, evaluation, authorisation and restriction of chemicals (REACH)	01.06.2007
2019/1782	External power supply efficiency	01.04.2020
EU Standards	**Scope**	
EN 9001:2015	Quality Management	
EN 61010-1:2020	Safety general laboratory equipment	
EN 61326-1:2013	Electromagnetic compatibility laboratory equipment	
EN 61010-2-010:2020	Safety heating devices	
EN 60950-1:2013	Safety information technology equipment	
EN 62368-1:2021	Safety information technology equipment	
EN 50364:2019	Human exposure to electromagnetic fields	

GBR Regulations	**Scope**	**Date effective**
S.I. 2016/1101	Electrical equipment safety	08.12.2016
S.I. 2016/1091	Electromagnetic compatibility (EMC)	08.12.2016
S.I. 2013/3113	Waste electrical and electronic equipment (WEEE)	01.01.2019
S.I. 2012/3032	Restriction of hazardous substances (RoHS)	02.01.2013
GBR Standards	**Scope**	
BS 61010-1:2010	Safety general laboratory equipment	
BS 62368-1:2020	Safety information technology equipment	
BS 63000:2018	Restriction of hazardous substances (RoHS)	

USA Regulations	Scope	Date effective
47 CFR Part 15 (FCC)	Electromagnetic compatibility (EMC)	
10 CFR Part 430	External power supply efficiency (CEC VI)	
17 CFR Parts 240 & 249b	Dodd frank “Conflict minerals”	
27 CCR Parts 25102-27001	Proposition 65: The safe drinking water and toxic enforcement act	
TSCA 40 CFR Part 751	Toxic substances control act	
USA Standards	**Scope**	
UL 61010-1:2012	Safety general laboratory equipment	
UL 61010-2:2019	Safety heating devices	

CAN Standards	Scope	
CSA-C22.2 No. 61010-1	Safety general laboratory equipment	
CSA-C22.2 No. 61010-2-10	Safety heating devices	
ICES-003: 2020	Information technology equipment	Oct. 2020

CHN Regulations	Scope	Date effective
AQSIQ Order 5 /2001	(CCC) safety and EMC requirements for electrical equipment	01.08.2003
Order 32/2016	Restriction of hazardous substances (RoHS)	01.07.2016
IEC 61010-1:2001	Safety general laboratory equipment	
IEC 61010-2-10:2003	Safety heating devices	
CHN Standards	**Scope**	
GB4943.1-2011	Information technology equipment safety	
GB9254-2008	Information technology equipment radio disturbance	
GB17625.1-2012	EMC limits for harmonic current emissions	
SJ/T 11364-2014	Restriction of hazardous substances (RoHS)	

JPN Regulations	Scope	Date effective
PSE (Denan) Law	Electrical appliance and material safety law	01.01.2014

KOR Regulations	Scope	Date effective
KS C 9610-6-4: 2017	(EN IEC 61000-6-4: 2019)	
KS C 9610-6-2: 2019	(EN IEC 61000-6-2: 2019)	
KS C 9610-3-2: 2020	(EN IEC 61000-3-2: 2019)	
KS C 9610-3-3: 2020	(EN 61000-3-3: 2013 +A1: 2019)	

ANZAC Regulations	Scope	Date effective
AS 61010-1:2003	Safety general laboratory equipment	
IEC 61010-2-010:2019	Safety heating devices	
AS/NZS 62368.1:2022	Safety information technology equipment	

Zizers, 2025-02-14

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Table of Contents

1 Introduction

This operating instruction manual has part number 137950, the version is V02. It applies to MAG/HEATMAG modules as of:

Serial number	230001 or higher
(Firmware) FW version	V1.13 or higher

These operating instructions contain all the information required for installation, operation and maintenance of the MAG and HEATMAG modules. This chapter informs about the symbols used in these operating instructions, the intended use of MAG/HEATMAG and the general safety instructions.

1.1 Symbols used

The operating instructions specifically advise of residual risks with the following symbols:

WARNING

This safety symbol warns against hazards that could result in injury. It also indicates hazards for machinery, materials and the environment. It is essential that you follow the corresponding precautions.

CAUTION

This symbol cautions against potential material damage or the loss of data in a microprocessor controller. Follow the instructions.

NOTE

This symbol identifies important notes regarding the correct operation of the device and labor-saving features.

The module is marked with the following symbol:

ATTENTION HOT

Do not touch the heat plate (4) or the labware adapter during and after the heat cycles. They can reach a temperature of up to 110 °C. Risk of second-degree burns.

1.2 Intended use

This is a general-purpose laboratory instrument for use in research only. Any use of this instrument in a medical or IVD setting is under the sole responsibility of the user.

This product may only be operated in a secure, protected network with validated, trustworthy clients. The operator must ensure that network security measures are always up-to-date and state-of-the-art. This product may not be directly exposed to the internet.

If the MAG/HEATMAG modules are used in a manner not specified by INTEGRA Biosciences, the protection provided by the MAG/HEATMAGs may be impaired.

MAG/HEATMAG modules are motor driven, adjustable magnets for magnetic bead separation. They have a SBS footprint and can be used as a stand-alone device, e.g. on MINI 96 and VIAFLO 96/384, or be integrated into the ASSIST PLUS pipetting robot. In addition, the HEATMAG provides a heating function.

1.3 Safety notes

MAG/HEATMAG comply to the recognized safety regulations and are safe to operate. MAG/HEATMAG should only be operated when in perfect condition and while observing these operating instructions.

The device may be associated with residual risks if it is used or operated improperly by untrained personnel. Any person operating MAG/HEATMAG must have read and understood these operating instructions, and particularly, the safety notes, or must have been instructed by supervisors so that safe operation of the device is guaranteed.

WARNING

- D*o not use MAG/HEATMAG near flammable material or in explosive areas. Also, do not pipette highly flammable liquids such as acetone or ether.*
- *When handling dangerous substances, comply with the material safety data sheet (MSDS) and with all safety guidelines such as the use of protective clothing and safety goggles.*
- Wearers of pacemakers and implanted defibrillators should keep a sufficient distance from the MAG/HEATMAG and the individual magnet carrier plates and warn wearers of such devices before approaching them. Magnets can impair the function of pacemakers and implanted defibrillators.
- Avoid the collision of two magnetic carrier plates or of a magnetic carrier plate with a magnetic object. Neodymium magnets are brittle and can splinter when they collide, whereby sharp-edged splinters can be thrown meters away and injure eyes.
- HEATMAG must only be used in combination with an adapter! Otherwise your fingers can get burned and it will never find the target temperature.

CAUTION

- *Do not modify MAG/HEATMAG in any way. Repairs may only be performed by INTEGRA Biosciences or by an authorized after-sales service member.*
- *Parts may be replaced with original INTEGRA Biosciences parts only.*

- *Keep the MAG/HEATMAG away from all devices and objects that can be damaged by strong magnetic fields. The MAG/HEATMAG generates a far-reaching, strong magnetic field.*
- *If you have a nickel allergy, wear gloves when handling the magnet carrier plate. The magnets are coated with nickel. Avoid permanent skin contact with the magnets.*

NOTE

- Prolonged exposure of MAG/HEATMAG to UV-light can cause discoloration and/or yellowing of MAG/HEATMAG housing. However, this will not affect the performance of the device in any way.
- *Do not use the MAG/HEATMAG in places where it is exposed to extreme heat and where the maximum insertion temperature of 65 °C is exceeded. It could permanently lose some of its magnetic force.*

Regardless of the listed safety notes, additional applicable regulations and guidelines of trade associations, health authorities, trade supervisory offices, etc. must be observed.

Please visit our website www.integra-biosciences.com on a regular basis for up to date information regarding REACH classified chemicals contained in our products.

2 Description of the device

2.1 Scope of delivery

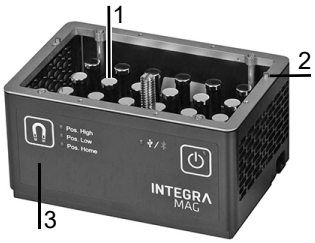
- MAG/HEATMAG magnetic module
- Mains adapter
- USB-C to USB-A cable
- USB-C to AUX cable
- Cable clips
- Quick start guide

CAUTION

Verify the scope of delivery when unpacking the device and check for potential transportation damage. Do not operate a device that is damaged, instead contact your local INTEGRA representative.

2.2 Overview of MAG/HEATMAG module

MAG



1 **Magnet array**, exchangeable (MAG only)

2 **Pin**, on both sides for labware adapter positioning

3 **Touch panel**

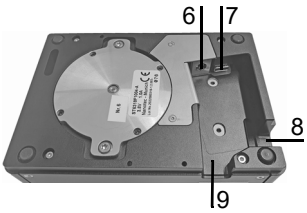
HEATMAG

with the following additional functions:

4 **Heat plate**, with warning symbol risk of burning

5 **Fan**, slots on both sides for cooling

Bottom view



6 **Socket for mains adapter**

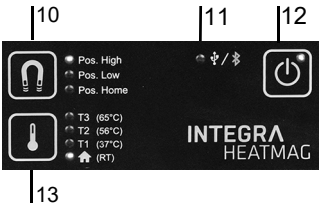
7 **USB-C port**, to connect PC or ASSIST PLUS

8 **Cable opening** for portrait orientation

9 **Cable opening** for landscape orientation

Touch panel

Active icons light up.



10 **Magnet button**, to set heights

11 **Status LED**, for USB connection white, for Bluetooth connection blue and in error case red

12 **On/Off button**, lights if on

13 **Temperature button**, to set temperature (HEATMAG only)

3 Installation

3.1 Operating environment

The MAG/HEATMAG have been designed for use in a laboratory. They shall be operated in a dry and dust-free location with a temperature of 5 – 40 °C and a maximal (non-condensing) relative humidity of 80 %.

3.2 Setting up

The MAG/HEATMAG modules must be set up on a cleaned, dry and horizontal surface. For HEATMAG allow at least 5 mm beside the ventilation slots (5) for free air circulation.

Connect the supplied mains adapter to the socket (6) on the bottom of the MAG/HEATMAG and connect the adapter via a 3-core cable to the electricity mains.

WARNING

Turn off and unplug the modules before moving to prevent unintentional height movement of the magnet. Risk of pinching fingers.

3.3 Inserting the labware adapter

Put the adapter on top of the MAG/HEATMAG. The correct alignment is given by the pins on both sides (2).

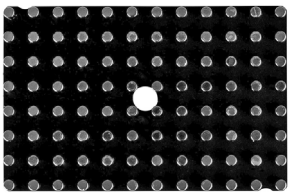
WARNING

With the HEATMAG in particular, make sure that the clean adapter sits flat on the heat plate so that the temperature can be transferred well and the plate does not overheat.

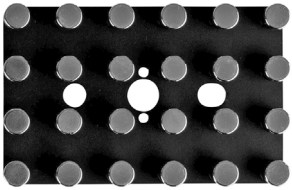
3.4 Changing the magnetic array (MAG only)

On MAG, you can install different magnetic arrays:

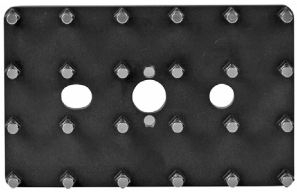
The notches ensure the proper alignment



Magnetic array for 384 well PCR plates



Magnetic array for 96 well PCR plates or 24 tubes



Magnetic array for deep well plates

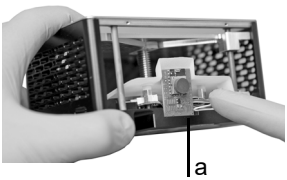
Move the magnet to the high position by pressing the magnet button (10).

Insert the magnetic array with the notches on the pins of the MAG.

3.5 Installing the communication module

CAUTION

The communication module may not be inserted and removed more than 10 times. Otherwise, its functionality is no longer guaranteed.

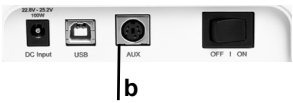


Use a Torx screwdriver to loosen the 4 screws on the back of the module and remove the cover plate.

Insert the communication module (#4222) into the socket near the bottom of the device (a). Position it carefully in the lowest position and press it to secure firm.

Replace the cover plate and tighten the 4 screws.

3.6 Connection with ASSIST PLUS



Plug the USB-C to AUX cable into the USB port (7) on the bottom of the MAG/HEATMAG and connect it to the AUX aux port (8-pin plug) of the ASSIST PLUS (b). Put the MAG/HEATMAG on the deck (position C recommended).

NOTE

Only ASSIST PLUS with 8-pin AUX port (serial number >=21011555) supports connection to MAG/HEATMAG.

4 Operation

4.1 Turn on/off the device

Turn on:
Press the On/Off button (12) on the touch panel to turn on MAG/HEATMAG. The LED illuminates and the module initializes.

WARNING
Keep your hands away from the top of MAG/HEATMAG during initialization. Risk of pinching fingers.

WARNING
HEATMAG must only be used in combination with a labware adapter attached. Risk of overheating the heating plate and burning your fingers.

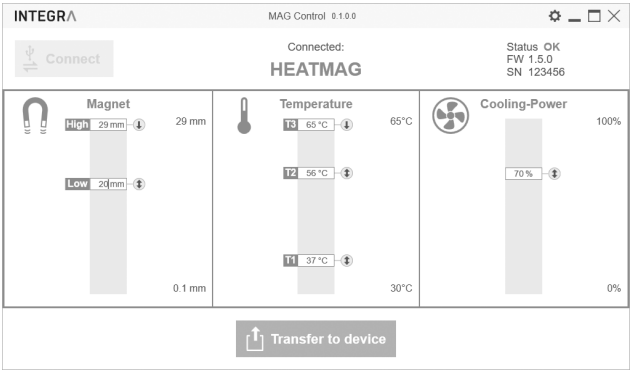
Turn off:
To turn off MAG/HEATMAG, press and hold the On/Off button (12) until it beeps.

NOTE
To save heating energy of HEATMAG, always to turn off the device if it is not used again within 5 minutes.

NOTE
It is recommended to move the magnet to the home position before storing the module.

4.2 Changing parameters via PC

You can adapt the default heights, temperatures and cooling-power of the MAG/HEATMAG via a PC. Download the MAG Control software from the INTEGRA website under Support - Download center (English only). Connect the USB cable to the USB-C port (7) on the bottom of the MAG/HEATMAG and connect it to the PC.

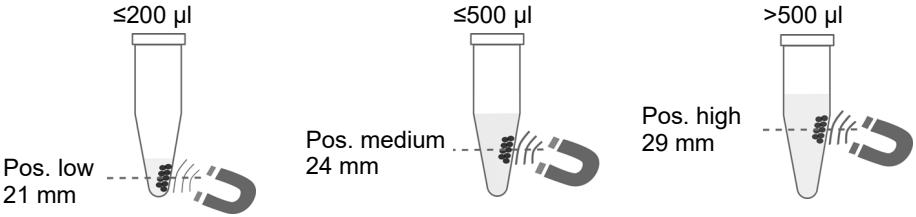


Start the intuitive MAG Control software.

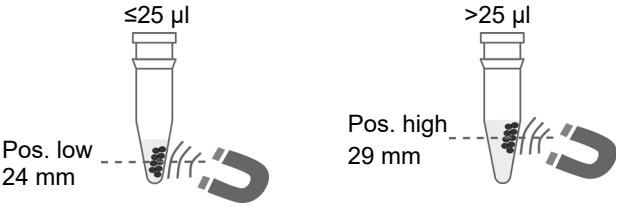
Press the “Connect” button to connect the desired MAG/HEATMAG.

Move the slider up and down to adjust the magnetic heights to your specific applications. The home position cannot be changed. The following heights are recommended:

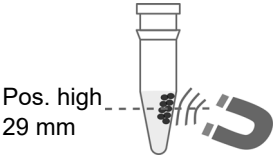
Adapter for 1.5 ml tubes



Adapter for 96 well PCR plates



Adapter for 384 well PCR plates



If a HEATMAG is connected, set the temperatures T1, T2, and T3. The optimal temperature values depend on used liquids, volumes, adapters and labware. The ambient temperature cannot be adapted. If required, also set the cooling power.

NOTE

If the cooling power is reduced, the cooling time is extended.

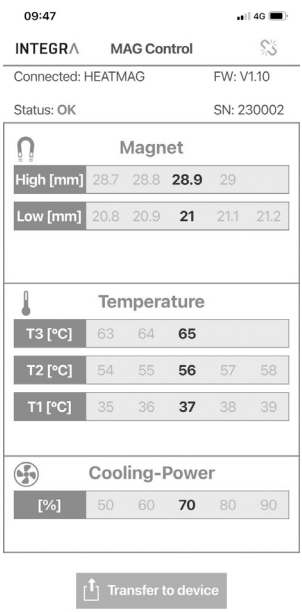
Press the “Transfer to device” button to save the adapted parameters on the connected MAG/HEATMAG.

NOTE

Stand alone remote control of MAG/HEATMAG via PC is not possible.
If you change default temperatures, they will no longer match those printed on the touch panel.

4.3 Changing parameters via app

A communication module must be installed (3.5) on your MAG/HEATMAG to set parameters via the MAG Control app. Download the MAG Control app, which you can find in the App Store, onto your smartphone.



Press and hold the magnetic button (10) and the On/Off button (12) of the MAG/HEATMAG simultaneously until it beeps. The status LED (11) flashes blue.

Open the app press the search button. Select your module. The status LED (11) lights permanently blue, the devices are paired.

Set the parameters and press Transfer to device.

NOTE

If you change default temperatures, they will no longer match those printed on the touch panel.

4.4 Running stand alone

The MAG/HEATMAG must not be connected to other devices. Press the appropriate magnet height (10) or temperature button (13).

With its SBS footprint, the MAG/HEATMAG fits on the plate holders of VIALFO 96/384 or MINI 96.

4.5 Running on ASSIST PLUS

Integration of the MAG/HEATMAG modules with the ASSIST PLUS pipetting robot (3.6) allows fully automated processing of bead purification protocols. Use the VIALAB pipetting automation software to create multi-step programs on a PC and transfer them to the pipette used on ASSIST PLUS. Please refer to www.integra-biosciences.com/download-vialab and VIALAB operating instructions for more information.

NOTE

In connection with ASSIST PLUS, only remote control of MAG/HEATMAG is possible.

4.6 Updating firmware

Download the latest firmware from the INTEGRA website under Support - Download center. Connect the MAG/HEATMAG to the to the USB port of your PC. From the VIALINK software go to the Firmware tab and install the latest firmware.

5 Maintenance

WARNING

MAG/HEATMAG maintenance should be carried out on a clean and dust free workplace. Always turn off power and disconnect MAG/HEATMAG from the mains and wear gloves when carrying out maintenance work.

WARNING

Before starting any maintenance work, allow the HEATMAG to cool down to room temperature.

MAG/HEATMAG modules are precision instruments, therefore a proper maintenance routine must be followed to ensure safe and reliable operation. Cleaning is recommended if MAG/HEATMAG has been contaminated or if it has come in contact with corrosive liquids.

5.1 Cleaning

The materials used on the exterior of MAG/HEATMAG support regular cleaning intervals. Clean the external components with a lint-free cloth lightly soaked with mild soap solution in distilled water or with a 70 % dilution of Isopropyl or Ethanol. Never use Acetone or other solvents.

WARNING

Do not spray cleaning solution directly onto the MAG/HEATMAG as this can potentially damage internal electronics.
If liquid ever enters the internals of MAG/HEATMAG, please contact your service technician.

CAUTION

MAG/HEATMAG can only be completely disassembled by trained service personnel.

5.2 Decontamination

If the surface of MAG/HEATMAG has been in contact with biohazardous material, it must be decontaminated in accordance to good laboratory practice. Wipe the clean surface with a lint-free cloth, lightly soaked e. g. with the following disinfectants:

- Ethanol 70 %
- Microcide SQ 1:64
- Glutaraldehyde solution 4 %
- Virkon solution 1-3 %

Follow the instructions provided with the disinfectants.

5.3 Servicing

For any service or repairs, please contact your local service technician.

WARNING

If working with infectious materials, e. g. human pathogens, MAG/HEATMAG needs to be decontaminated before sending them to service and the declaration on the absence of health hazards must be signed. This is necessary to protect service personnel.

5.4 Equipment disposal

MAG/HEATMAG must not be disposed of with unsorted municipal waste. Do not dispose of MAG/HEATMAG in a fire.

Dispose of MAG/HEATMAG in accordance with the laws and regulations in your area governing disposal of devices. In certain regions and countries, e.g. in EU member states, the distributor is obliged to take back this product free of charge at the end of life. Please contact your local distributor for more details.

6 Technical data

6.1 Environmental conditions

	Operation
Temperature range	5–40 °C
Humidity range	Max. rel. humidity 80 % for temperatures up to 31 °C, decreasing linearly to 50 % rel. humidity at 40 °C.
Altitude range	<2000 m

6.2 Specification of the device

Electricity supply	Mains adapter input: 100–240 V, 50/60 Hz Device input: 24 V, 120 W
Dimensions (H x D x W)	MAG: 70 mm x 88.5 mm x 133 mm HEATMAG: 73 mm x 88.5 mm x 133 mm
Weight	MAG: 1 kg HEATMAG: 1.1 kg
Magnet heights	0 - 29.0 mm, settable in 0.1 mm steps. Recommended values set at factory: Pos. High (mm): 29 Pos. Low (mm): 21 Home: 0
Temperature range	Ambient (measured) to 65 °C. Recommended values set at factory: • T3 (°C): 65 • T2 (°C): 56 • T1 (°C): 37 • Ambient
Temperature uniformity Temperature precision	± 1 °C ± 2 °C
Cooling power range	0 % to 100 % Recommended value set at factory: 70 %
Material of surfaces	Housing: Stainless steel, anodized aluminum

6.3 Intellectual property

For patent and trademark information visit:
https://www.integra-biosciences.com/patents-trademarks.

7 Accessories

7.1 Accessories

Adapters and platform modules	Part no.
Adapter for 1.5 ml tubes, format 4 x 6 (MAG/HEATMAG)	4905
Adapter for 96 well PCR plates (MAG/HEATMAG)	4906
Adapter and magnetic array for 96 well deep well plates (MAG)	4907
Adapter and magnetic array for 384 well PCR plates (MAG)	4908
COLDPLATE for cooling and heating, integration ready	4950
BIOSHAKE 3000 for shaking, integration ready	4951
BIOSHAKE 3000-T for heating and shaking, integration ready	4952
Adapter for flat bottom plates (COLDPLATE/BIOSHAKE)	4953
Adapter for 96 well PCR plates (COLDPLATE/BIOSHAKE)	4954
Adapter for 384 well PCR plates (COLDPLATE/BIOSHAKE)	4955
Adapter for 24 x 1.5 ml or 15 x 0.5 ml tubes (COLDPLATE/BIOSHAKE)	4956
Adapter for 2.2 ml deep well plates (COLDPLATE/BIOSHAKE)	4961
Adapter for 2.0 ml screw tubes, format 4 x 6 (COLDPLATE/BIOSHAKE)	4962
Labware Pedestal, +50 mm	4963

General	Part no.
Communication module for MAG/HEATMAG modules	4222
ASSIST PLUS pipetting robot	4505

Disclaimer

Every effort has been made to provide complete and accurate information in this manual. Although this manual should contain a specifically labeled warranty notice for the product, INTEGRA Biosciences AG makes no representations or warranties with respect to the contents of this manual and reserves the right to change this manual without notice if and when improvements are made.

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INTEGRA Biosciences AG aims to provide reliable and accurate data and documentation. If you find a discrepancy, we would be grateful for your assistance and ask you for email us at info@integra-biosciences.com.

Manufacturer and customer service
Your local INTEGRA Biosciences representative, further information, and operating instructions in other languages can be found at www.integra-biosciences.com or are available on request info@integra-biosciences.com.

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