

# MICRO+™ MR

## Fixed Laser Systems for MR Simulation & MR Linacs

- One price for red, green or blue wavelengths
- Remotely control laser positioning with ease – to an accuracy of 0.15 mm
- MR-compatible system up to 3 Tesla
- Includes MRI-compliant power supply kit



## Zero Interference™ for MR-Simulation and MR-Guided Radiotherapy

The MICRO+ MR fixed laser system is the patient alignment solution for any MR environment, up to 3 Tesla. System design allows power to pass through a noise filter prior to connecting with each unit, retaining Zero Interference with MR image quality.

The elegant Bluetooth-enabled remote control, with wrist strap, enables staff to move freely as they work -- and make up to 12 possible adjustments with ease. There is no need to stop and point the remote at the laser to make adjustments. Accuracy of 0.15 mm helps ensure optimal laser positioning, every time.

Additional smart design touches – such as backlighting on the remote for use in dark rooms and a remote locator feature for fast finding in case of misplacement – increase efficiency at every step.

### Easy implementation

MICRO+ MR lasers mount to the wall and ceiling, keeping MR rooms organized, with a clear path for patient transport and injector equipment.

#### THREE LASER WAVELENGTH OPTIONS—ONE PRICE



BLUE



RED



GREEN



MICRO+™ MR // Patient Alignment & Setup

≤ 0.5 mm laser line width @ 3 m

0.15 mm adjustment accuracy

Laser ID label

IR receiver can be used as a backup connectivity option

LED provides visual cue of laser power and activity with no disruption to the laser line

> 4 m laser line length at 3 m

Remote Control Locator

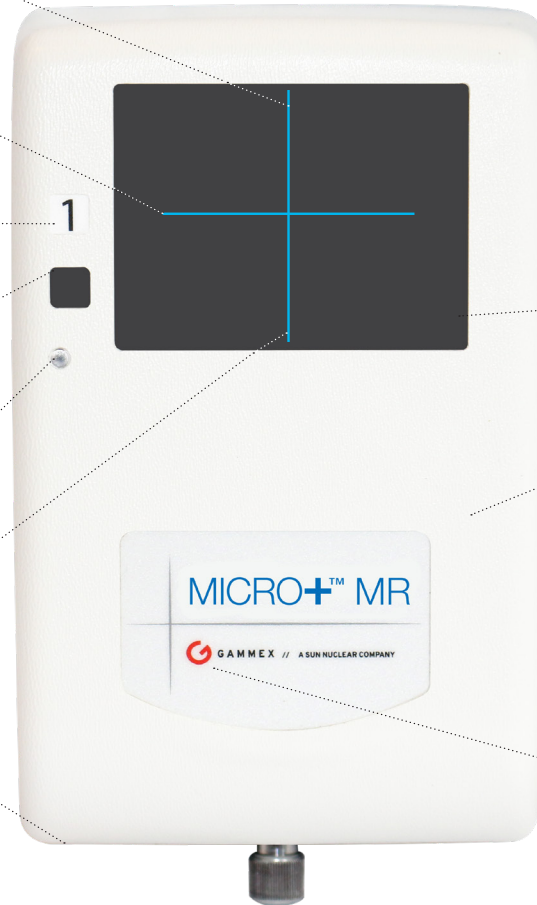
Integrated Bluetooth technology eliminates the need for external receivers and provides maximum range of motion without the need for line-of-sight adjustments

High impact optical window minimizes refraction and distortion for all colors

High strength polycarbonate cover minimizes weight and maximizes MR-compatibility

Solid aluminum back plate ensures stability

A name you can trust with more than 40 years of experience designing and supporting lasers exclusively for medical imaging



Ergonomic design lets you adjust multiple axes without removing your finger from each multi-speed control

Low battery indicator

Backlit controls for hassle- and error-free use in darkened rooms

OneTouch™ laser selection with audible connection verification means there is no need to press multiple buttons each time you select a different laser

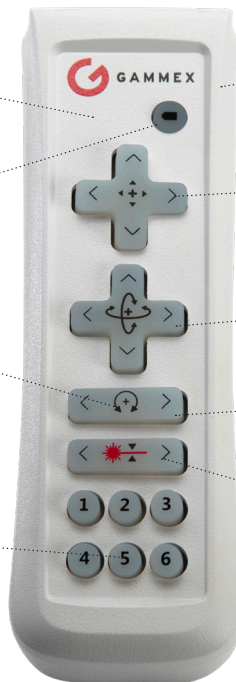
Internal alert for misplaced remote

Linear Up/Down & Left/Right

Tilt Up/Down & Left/Right

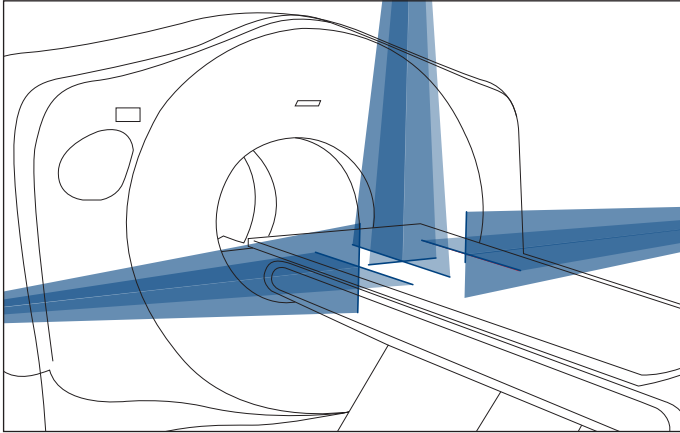
Rotate Clockwise & Counter Clockwise

Focus near/far for <0.5 mm line width

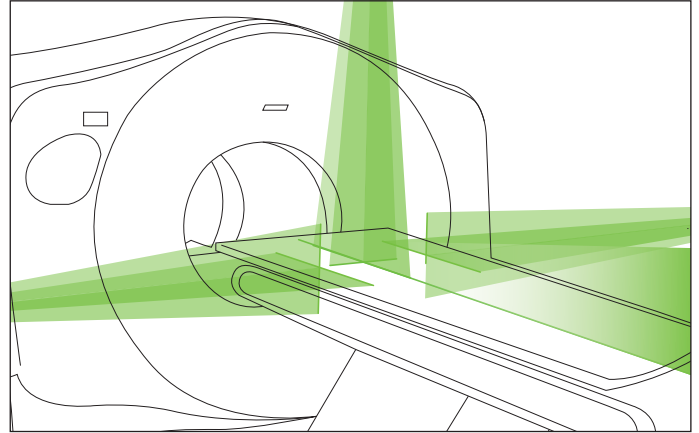


Not pictured - Wrist strap for MR safety

## Laser configurations



3-Laser System - 3 Crosshair Lasers



4-Laser System - 3 Crosshair Lasers, 1 Sagittal Laser

## Zero Interference System Offerings

MICRO+ MR systems are available as a 3-unit or 4-unit offering, each with three color options: red, green, or blue. All systems include a power supply designed to convert AC to DC outside of the Faraday cage, cable/connectors to run DC power through the Filter Panel before entering the MR environment, and a Junction Box to distribute DC power to each individual laser unit.

## Filter Panel Interface - Planning

Power going into an MR suite is filtered for low frequency noise at the penetration panel. Each site should work with their RF shield designer to ensure a filtered 9-pin D-sub connection is available for lasers at the Penetration Panel. MICRO+ MR includes D-sub connectors to field terminate cables that will pass power through the Panel. Contact your RF shield designer to ensure lasers are included in the site plan.

## Systems

	3-Unit System	4-Unit System
Color Choice - One Price:	Red, Green, Blue	Red, Green, Blue
MICRO+ MR Crosshair Units:	3	3
MICRO+ MR Sagittal (Line) Units:	NA	1
Remote Control (with wrist strap):	1	1
MR Power Supply (AC/DC):	1	1
MR Junction Box (1 in/4 output):	1	1
Cable, 18 AWG:	61 m (200 ft)	91 m (300 ft)
MR Filter/Penetration Panel Connectors:	2 - Female 9-pin D-sub Connectors, 1 – D-sub gender changer	2 - Female 9-pin D-sub Connectors, 1 – D-sub gender changer

## Specifications

Adjustment Type:	Hand held remote control
Degrees of Movement/ Freedom:	6
Left - Right:	≥ ± 15 mm
Up - Down:	≥ ± 15 mm
Rotation:	≥ ± 5°
Horizontal Tilt (yaw):	≥ ± 5°
Vertical Tilt (pitch):	≥ ± 5°
Focus Range:	1.5 m - 4 m
Adjustment Accuracy:	0.15 mm
Adjustments Speeds:	Slow – Ultra accurate steps (0.15 mm) for each touch of the control Medium - Hold the control for continuous motion Fast – Continue to hold the control for faster speeds and larger movements
Remote Technology:	Bluetooth & infrared
Remote Receiver:	Integrated
Remote Operational Range:	> 10 m
Remote Locator:	"Find remote" option on each laser
Number of Lasers per Remote:	6
Laser Selection:	OneTouch™ automatic laser and remote pairing

Line Width (All Colors):	≤ 0.5 mm @ 3 m
Line Length:	4 m @ 3 m
Laser Type:	Diode
Laser Output:	< 1 mW
Power Supply:	100 – 240 volt (manual select)
Unit Dimensions:	216 mm × 134 mm × 80 mm (H×W×D)
Unit Weight:	< 1 kg
Available Colors:	Wavelength 635 nm Red Wavelength 515 nm Green Wavelength 450 nm Blue
Installation Options:	Wall mount ± 45° (with optional tilt and adapter bracket)

## Certifications

Gammex is a ISO13485 certified medical device manufacturer. Made in the USA. Complies with Center for Devices and Radiological Health regulations for Class II lasers and all CE requirements.

(21 CFR 1040) (IEC 60601) (IEC 60825-1) (MDD 93/42/EEC)