



*Excellent embryo hosting for high success rates*

# MIRI® II-12

Multiroom Incubator for IVF

**One Patient – One Chamber**

**MIRI® II-12 Multiroom Incubator**



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# MIRI<sup>®</sup> II-12



**ESCO**  
MEDICAL<sup>®</sup>

MIRI-II DEMO 02/2014									
1	2	3	4	5	6	7	8	9	10
01.01	01.02	01.03	01.04	01.05	01.06	01.07	01.08	01.09	01.10
01.11	01.12	01.13	01.14	01.15	01.16	01.17	01.18	01.19	01.20
01.21	01.22	01.23	01.24	01.25	01.26	01.27	01.28	01.29	01.30
01.31	01.32	01.33	01.34	01.35	01.36	01.37	01.38	01.39	01.40
01.41	01.42	01.43	01.44	01.45	01.46	01.47	01.48	01.49	01.50
01.51	01.52	01.53	01.54	01.55	01.56	01.57	01.58	01.59	01.60
01.61	01.62	01.63	01.64	01.65	01.66	01.67	01.68	01.69	01.70
01.71	01.72	01.73	01.74	01.75	01.76	01.77	01.78	01.79	01.80
01.81	01.82	01.83	01.84	01.85	01.86	01.87	01.88	01.89	01.90
01.91	01.92	01.93	01.94	01.95	01.96	01.97	01.98	01.99	02.00

MIRI® II-12 Multiroom Incubator dedicates one chamber for one patient to ultimately secure a minimum-stress environment for embryos. The chambers are completely independent of each other. Any disruption on one chamber (e.g. temperature drop after opening the lid) has zero impact on the rest of the system.

## FEATURES:

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### Heated Lid

Prevents condensation and improves temperature regulation and recovery enhancing uniformity within each chamber.



### Heated bottom

Provides direct heat transfer to the culture dishes for stable heat regulation.

### Built-in pH System and an Optional SAFE Sens Integration

The MIRI® II-12 has a built-in pH system that the user can use to calibrate the pH meter and measure the pH of the media. *See page 9 for more information on SAFE Sens integration.*

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### Multiroom System

The MIRI® II-12 Multiroom Incubator have multiple independent chambers with very stable environments, allowing embryologist to culture embryos from individual patients in individual chambers.

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### Touchscreen PC

Allows user to control and monitor important parameters (temperature, gas concentration) simultaneously and gives visual and audible alarm to signal critical conditions. It has large display that can be easily seen from a distance.



# Maximize embryo growth potential by providing VIP treatment



Oxygen range: 5-10%  
Carbon dioxide range: 3-10%  
Temperature range: 25°C to 40°C  
Gas recovery: less than 3 minutes  
Temperature recovery: less than 1 minute

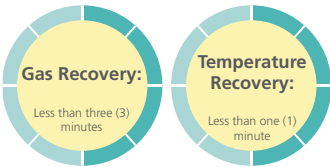
**Common Stressors:**  
- Temperature fluctuations  
- Gas concentration fluctuations  
- Non-optimal pH  
- Volatile Organic Compounds (VOCs)

## Elevated O<sub>2</sub> concentration isn't always a good thing

While oxygen (O<sub>2</sub>) is necessary for normal aerobic metabolism, it is a double-edged sword as it can harm the developing embryo through oxidative damage. Recent studies highlight the benefit of having suppressed oxygen levels when incubating human embryos reflecting the natural low oxygen conditions in the womb.

## Shhh... Do not disturb

The MIRI® II-12 has an overall design that provides cultured embryos a minimum-stress environment. The independent chamber system prevents cross-contamination while HEPA/VOC filtration cleans the airstream. The small chamber volumes and direct heat regulation further translate to faster temperature and gas recovery.



## Fast Recovery

There are many advantages to using multiroom incubators. One important benefit is the speed of recovering temperature and gas parameters after opening a chamber.

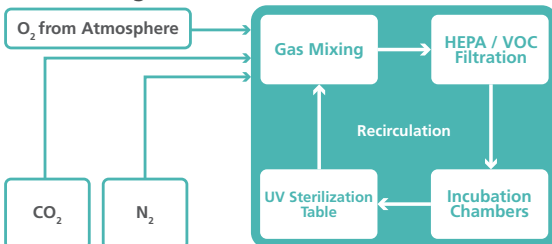


## The little details count

IVF practitioners deal with precious, fragile and sensitive embryos, and often, the little details make a big difference. The MIRI® II-12 has a large Touchscreen display that can be easily seen from a distance. Also, the glass lid tops, can be written on — a very useful feature for organization.

There is a possibility to connect an external monitor via an HDMI connector on the back of the unit to see the incubation parameters from a more significant distance.

## Airflow Diagram



## Provide total control of the gas phase environment

The built-in gas mixer and the high-performance CO<sub>2</sub> and O<sub>2</sub> sensors allow accurate control of gas phase composition within the chambers.

# MIRI® II-12 is built with Excellent Quality Control Features



## The MIRI® II-12 has reliable gas mixing system that allows gas phase flexibility.

The gas mixer of MIRI® II-12 gives total control over CO<sub>2</sub> and O<sub>2</sub> concentration levels while also giving flexibility over what gas input is desired.\* Moreover, the HEPA/VOC filter and UV sterilization ensure that only the highest quality of air is circulated to the cultures.



### A suite of IVF-essential features

*There is a BNC connection for pH measurement, USB communication port, and port for external alarm monitoring.*

The MIRI® II-12 can be connected to a PC to avail of data logging via the supplied software included. Connections to external alarm monitoring systems and pH measurements are also possible.



### High quality airstream via HEPA/VOC filter + UV

*The filter module can be easily replaced once used.*

The gas in the MIRI® II-12 is continuously recirculated through a HEPA/VOC filter. A UV-C light (254 nm) sterilizes the airstream before passing through the filter.

## Stress-free validation of chamber parameters



PT1000 temperature sensors are built-in, which are completely independent from the main circuitry. Gas sampling ports are likewise available for all 6 or 12 chambers.

The MIRI® II-12 can be connected to an external device such as the Esco MIRI® GA for gas and temperature validation.

*\* Input of pure gases is recommended*



# Intuitive and User-Friendly Touchscreen PC

Used to control and monitor important parameters (temperature, gas concentration) simultaneously and give visual and audible alarm to signal critical conditions. It has large display that can be easily seen from a distance and since it is a PC, it is equipped with a great deal of features to help make life in the laboratory easier.



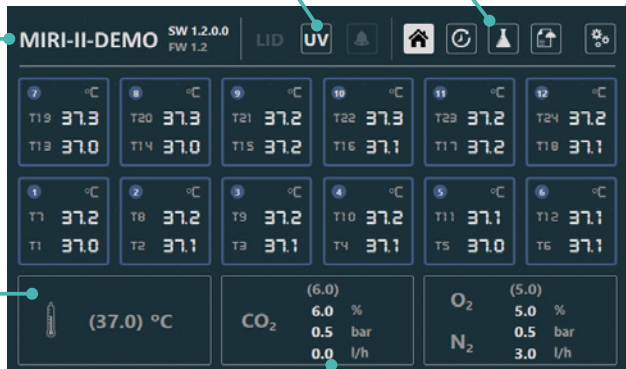
pH Measuring Menu

UV Lamp Menu

Name of Equipment, Serial number, Software and Firmware Versions

Chamber Temperature Setpoint

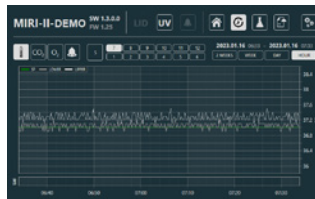
Gas concentration Setpoint



## Full-featured data logging software



Complete parameters are displayed. Histories of any alarm events are logged.



The data logger stores continuous performance data of the machine throughout its use. These can be viewed in graphs.



The user can plug any standard BNC pH probe into the unit and measure the pH in the samples at will



Conditions that put the MIRI® II-12 into alarm state are recorded. It is possible for the software to send email alerts as well.

All real-time parameters of the machine can be conveniently viewed. These include the temperature of all monitored temperature and gas concentration points, gas input pressures, gas flow rates, current gas readings, and all set points.

All performance data of the machine including alarms are continuously logged and can be viewed in graphs. The data logger also automatically generate reports weekly which makes it more convenient for the user.

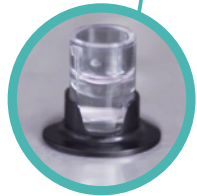


# Never measure pH manually again. Monitor it with SAFE Sens.



## SAFE Sens\* Integration

The integration of SAFE Sens technology to the Esco MIRI® II-12 incubator creates the most advanced non-invasive embryo monitoring system in the market. No other systems can have as much information at your fingertips about your embryo development and embryo culture in real-time.



### Continuous pH measurement

- Reading and recording every 30 minutes (default setting - adjustable).
- Single use sensor probe for up to seven (7) days of pH readings.



### Easy to implement

- Easy to align (no buffers, no hassles).
- Easy to use and maintain.



### Data Logging System

- Data Logging and user alarms.
- Each TrakStation® can be connected to multiple incubators.



### Compact and Efficient

- No more unnecessary openings of your incubator chamber for spot pH measurement.
- Only requires 100 µL of media + 50 µL of oil.

\* SAFE Sens is a trademark brand of Blood Cell Storage, Inc. (BCSI). SAFE Sens integration is currently offered as a factory-installed option.

## Accessories



MIRI® II-12



SV2 Sensor



QC2 Alignment Tool



SAFE Sens TrakStation

### Notes:

- (1) One QC2 alignment tool can be used on all incubators even if the incubator is located at a separate room.
- (2) QC2 Alignment tool and SV2 sensors have an expiration date of one (1) year.
- (3) The MIRI® II-12 with SAFE Sens automatically comes with free one (1) pack of SV2 sensors, which is to be used for Site Standardization. Please determine how many additional packs you need for routine pH testing .
- (4) One TrakStation can connect up to eight (8) incubators by using a USB 3.0 Hub. However, the need for another TrakStation is necessary if some incubators are found in a different room.

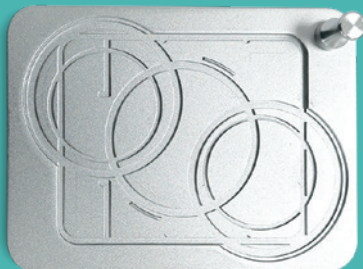
## Just a fitting solution...

MIRI® II-12 comes with specific inserts matching the type of dishes used in the laboratories.

### Heating optimization plates

Each chamber contains a heating optimization plate to facilitate heat transfer directly to the culture dishes.

- Has inserts to fit various dish sizes



*The dishes fit into the inserts so that the heat is directly transferred to the media.*

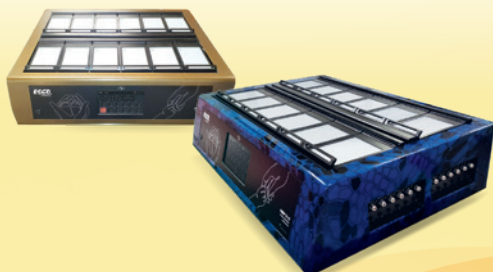
# General Specifications

## MIRI® II-12 Multiroom Incubator

Overall Dimensions (W x D x H)	740 x 575 x 215 mm (29.1 x 22.6 x 8.5")
Compartment Dimensions	120 x 90 x 26 mm (4.7 x 3.5 x 1")
Net Weight	47 kg
Material	Mild steel / Aluminum / PET / Stainless steel
Power Supply	115V 50/60 Hz or 230V 50/60 Hz
Power Consumption	500 W
Temperature Control Range	25 - 40° C
*CO <sub>2</sub> Gas Consumption	<2 L/h
**N <sub>2</sub> Gas Consumption	<12 L/h
CO <sub>2</sub> Control Range	3 - 10%
O <sub>2</sub> Control Range	5 - 10%
CO <sub>2</sub> Input Gas Pressure	0.4 – 0.6 bar (5.80 – 8.70 PSI)
N <sub>2</sub> Input Gas Pressure	0.4 – 0.6 bar (5.80 – 8.70 PSI)
Shipping weight	63 kg (including the pallet's weight)
Shipping dimension	900 x 720 x 460 mm (35.4 x 28.3 x 18.1") (unit on the pallet)

\* Under normal condition (CO<sub>2</sub> set point reached at 6.0%, all lids closed)

\*\* Under normal condition (O<sub>2</sub> set point reached at 5.0%, all lids closed)



These limited-edition MIRI® II-12 units are available in line with Esco Medical's 10<sup>th</sup> year anniversary.

# Ordering Information

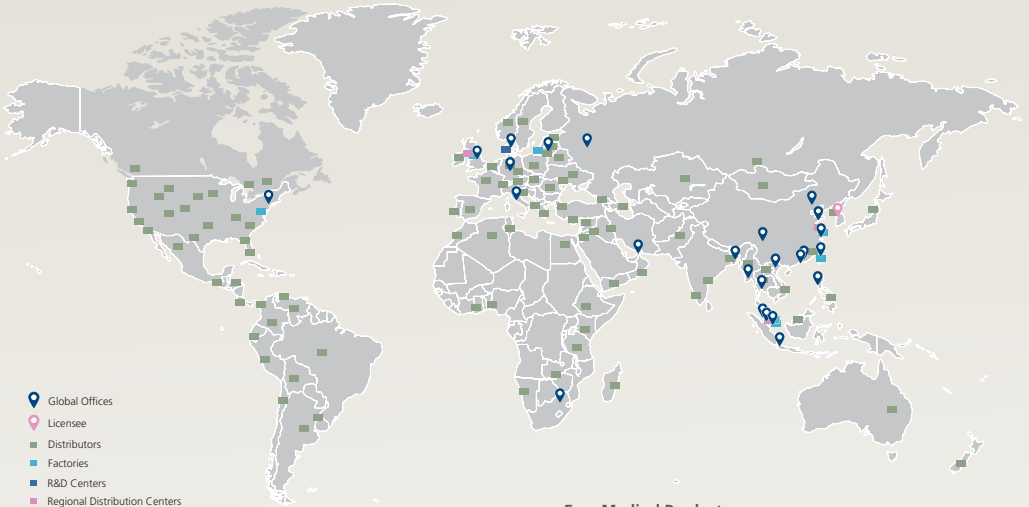


ITEM CODE	MODEL CODE	DESCRIPTION
2070164	MRI2-12C-8	MIRI® II-12 Incubator with 12 chambers, 230V, 50/60Hz
2070165	MRI2-12C-9	MIRI® II-12 Incubator with 12 chambers, 115V, 50/60Hz
2070166	MRI2-12C-SS-8	MIRI® II-12 Incubator with 12 chambers, with SAFE Sens, 230V, 50/60Hz
2070167	MRI2-12C-SS-9	MIRI® II-12 Incubator with 12 chambers, with SAFE Sens, 115V, 50/60Hz

## Accessories

ITEM CODE	MODEL CODE	DESCRIPTION
1320429	MRA2-FD	Insert for Falcon® Dishes
1320430	MRA2-ND	Insert for Nunc™ Dishes
1320431	MRA2-VD	Insert for Vitrolife Dishes
1320433	MRA2-LD	Insert for LifeGlobal® GPS Dishes
1320436	MRA2-OD	Insert for SparMED Oosafe®
1320434	MRA2-PD	Insert for Plain Dish
1320417	MRA2-FD-SS	Insert for Falcon® Dishes, with hole for SAFE Sens
1320418	MRA2-ND-SS	Insert for Nunc™ Dishes, with hole for SAFE Sens
1320419	MRA2-VD-SS	Insert for Vitrolife Dishes, with hole for SAFE Sens
1320421	MRA2-LD-SS	Insert for LifeGlobal® GPS Dishes, with hole for SAFE Sens
1320437	MRA2-OD-SS	Insert for SparMED Oosafe®, with hole for SAFE Sens
1320422	MRA2-PD-SS	Insert for Plain Dish with hole for SAFE Sens

# ESCO LIFESCIENCES GROUP



## Esco Medical Products:

- MIRI® TL6 Time-Lapse Incubator
- MIRI® TL12 Time-Lapse Incubator
- MIRI® Multiroom Incubator
- MIRI® II-12 Multiroom Incubator
- Mini MIRI® Dry Incubator
- Mini MIRI® Humidity Incubator
- Esco Multi-Zone ART Workstation
- CelCulture® CO<sub>2</sub> Incubator
- MIRI® GA (Gas and Temperature Validation Unit)
- MIRI® AVT
- Versati™ Tabletop Centrifuge
- CultureCoin®

*Infertility is a problem that has a significant social, psychological, and economic impact on afflicted individuals and couples. It is a global concern that knows no race or creed. It has been estimated that 1 in 6 couples struggle with infertility at least once in their lifetime.*

*Esco Medical is one of the divisions of the Esco Lifesciences Group. We provide innovative technological solutions for fertility clinics and laboratories. We aim to become the leading manufacturer of high-quality equipment such as long-term embryo incubators, ART workstations, anti-vibration tables, and time-lapse incubators.*

*Our products are designed with the Silent Embryo Hypothesis as a guiding principle. The Silent Embryo Hypothesis states that the less disturbed an embryo can remain, the better its developmental potential will be. Most of our products are designed in Denmark and made in the EU. Our primary focus is to increase pregnancy success rates and patient satisfaction.*



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