NEW

PORTABLE GAS INDICATOR
MODEL FI-21
FOR ANESTHETIC VAPORIZER CALIBRATION
DOES IT ALL!

Latest development in the line of RIKEN GAS INDICATORS based on the
optical interferometer principle.

● Digital LCD Readout
● You select base gas (O₂ or Air), Halothane, Isoflurane, Desflurane or Sevoflurane
● Built in push button sample pump

The NEW RIKEN F1-21 makes all calculations and adjustments for range, anesthetic, and conversion factors automatically.

● In the anesthetic application, the function of the FI-21 Riken Gas Indicator is the same as the other models with the advantage of
direct digital readout, selectable anesthetic gas, and base gas (air or O₂), electric sample pump and automatic set up for
any or all of the previous models of Riken Gas Indicators.
● Memory: Stores up to 100 readings with time and date.
● Power: 4 “C” size alkaline cells for operating optical system illumination electronics and sample pump. Average life of battery, 80 hours.
● Direct Readout of % volume measurement of commonly used anesthetics on LCD display.
● Automatic accommodation for selected anesthetic base gas and scale range and no conversion factors or calculation required.
● Self checking readout on display.

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Measuring gas</th>
<th>O₂ base: Halothane, Isoflurane, Sevoflurane, Desflurane</th>
<th>Air base: Halothane, Isoflurane, Sevoflurane, Desflurane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring ranges</td>
<td>The number in ( ) is the minimum digit. [Unit: vol%]</td>
<td></td>
</tr>
<tr>
<td>Base gas</td>
<td>Meas. gas</td>
<td></td>
</tr>
<tr>
<td>O₂ base</td>
<td>0~6 (0.01)</td>
<td>0~8 (0.01)</td>
</tr>
<tr>
<td>Air base</td>
<td>0~6 (0.01)</td>
<td>0~8 (0.01)</td>
</tr>
</tbody>
</table>

Power source           | C size alkaline battery (4 ea.), or AC adapter (Option) |

AIR CAL. value         | AIR CAL value = Indication when the instrument detects the fresh. [Unit: vol%] |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Base gas</td>
<td>Meas. gas</td>
</tr>
<tr>
<td>O₂ base</td>
<td>1.57 1.65 1.70 2.10</td>
</tr>
<tr>
<td>Air base</td>
<td>0.00 0.00 0.00 0.00</td>
</tr>
</tbody>
</table>

Indication accuracy    | Within ±3% of the reading value ± 1 digit (Air base) |
Opting temp./Hum.      | 5~35°C, Below 80% RH                                                                |
Battery life           | Approx. 20 hours in continuous (without sampling)                                    |
Outputs                | Data logger, Analog output 0~1 V                                                    |
Data logging funct.    | Concentration reading with Month/Day/Year and Time                                  |
Maximum recording number: Up to 100 |
Dimensions/weight      | Approx. 200 (W) x 80 (H) x 145 (D) (mm) / Approx. 2kg                              |
Standard access.       | Sampling tube, Carrying case, Sampling "T" piece                                    |
Optional access.       | AC Adapter                                                                          |

#DI-40184 for all popular anesthetics

*Specifications subject to change without notice.*
Anesthesia Machine

**#CZ-MAG1** Portable Anesthesia Machine w/ Sevoflurane Vaporizer

**DIMENSIONS**
- Height: 23 inches
- Depth: 23 inches
- Width: 17 inches
- Weight:
  - Free-Standing: 45 lbs
  - Enclosed in Carrying Case: 100 lbs

**Machine Materials**
Aluminum, brass and plastic

**Carrying Case Materials**
Plastic, military grade

**Operating Temperature Range**
35° F to 110° F

**Required Gas Supply Sources**
- O2 Main and Cylinders: 38 to 70 psi (50 psi is optimal)
- Air and/or Air Compressor: 38 to 70 psi (50 psi is optimal)
- Oxygen Concentrator: 3 to 10 psi

**Flowmeter Fresh Gas Flow**
1 to above 20 lpm (each flowmeter)

**Oxygen Flush Valve**
Recessed, self-closing, push-button, color coded and labeled, provides 45-55 lpm constant flow, while push-button is depressed

**CO2 Absorber System**
King Systems KAB-9 (refillable) or KAB-1 (pre-filled/disposable)

**CO2 Absorber Canister Capacity**
400 grams soda lime

**Directional Valves**
Built in the CO2 Absorber

**CO2 Absorber Holding Bracket**
Plastic, secured with knob to main frame of machine

**Bag-Ventilator Switch/PRV and Scavenger Outlet Port**
Hand-operated selector switch and rotating knob for PRV and scavenging outlet

**Bellows**
Latex free, upward inflating, range from 0 to 1.6L

**Bellows Pressure Relief**
Pre-set at 60 cm H2O

**Common Gas Outlet**
Quick-connect, size-indexed

**Tubing Circuit**
King Systems F-360-61 or any standard anesthesia circle circuit

**Gas Pressure Hoses**
DISS and thread indexed, female connectors at both ends

**Gas Inlet Manifold**
DISS and thread indexed, male connectors with one-way valves

**Gas Inlet Manifold Filters**
Located behind Manifold Air and O2 inlet male connectors

**Gas Inlet Pressure Regulators**
- Main supply cylinder
- Safety backup cylinder
- DISS/thread indexed for O2
- Pin-indexed, yoke mounted for "D" and "E" cylinders for O2

**Oxygen and Air Supply Gauges**
0-3000 psi range, color coded and labeled

**Oxygen Supply Alarms**
- Main and safety back-up
- O2 Concentrator
- Alarm power source
- Alarm on/off
Pneumatically actuated when O2 supply falls below 35 psi
Pneumatically actuated when O2 supply falls below 1 psi
9-volt battery located in body of alarm box
Labeled toggle switch located on body of alarm box

**Air and O2 Flowmeters**
Calibrated and scaled 0-10 lpm, color coded, O2 flowmeter has a fluted control knob for easy identification by touch

**Oxygen Concentrator**
To power O2 flowmeter only

**Air Compressor**
May be used to power ventilator and air flowmeter

**Oxygen Analyzer/ Monitor**
OM-25-ME (or equivalent)
Sensor life expectancy 2 years under normal conditions

**Auxiliary O2 Flow Selector**
Scaled 0-10 LPM in set increments, used for pre/post anesthesia

**Vaporizer**
Penlon SigmaDelta Series, bolt (cage) mounted, temperature compensated, very low maintenance

**Airway Pressure Gauge**
Dual scaled in cm H2O and mmHg, located on front panel of ventilator

**Pressure Gauge Tubing**
Attached to bag/vent switch arm

**Mechanical Ventilator**
Pneumatically powered, time cycled, volume constant, pressure variable

**Ventilator Pressure Relief**
Pre-set to maximum of 60 cm H2O located in main vent box

**Volume Range**
0 to 1.6L

**Insp. Flow Range**
0 to .90 lps

**Insp. Time Range**
0.2 to 3.0 seconds

**Esp. Time Range**
0.2 to 30 seconds

**Ventilator Gas Power Requirements**
40 to 70 psi, 50 psi optimal
Use toggle switch to select gas source

**Waste Gas Scavenger**
Positive and negative relief valves, 1L reservoir bag, vacuum control knob

**Total Machine Gas Leakage**
- @30 cm H2O: -0- ml/Min
- @80 cm H2O: -0- ml/Min

**Internal System Compliance**
- @20 cm H2O: 1.1 ml/cm H2O
- @40 cm H2O: 1.3 ml/cm H2O

**Internal System Resistance**
- @1.0 L/sec gas flow: 4.1 cm H2O
- @0.5 L/sec gas flow: 8.0 cm H2O

**APL Valve Pressure Drop**
- @3.0 L/min gas flow: 0.12 cm H2O
- @30 L/min gas flow: 1.03 cm H2O

**Storage**
- Indoor: +160° F Allow unit to warm to room temp.
- Outdoor: -30° F

---

Mercury Medical®
Page 51 (800) 835-MMED (727) 573-0088 FAX (800) 990-6375