Advanced, simple, and revolutionary.

Automation and innovation at the touch of a button.
Now, automation is even better.

Our advanced PLUS technology enables:

- Faster touch-screen responsiveness
- Integrated wireless
- Remote service

Complements other key features:

- **iQM**
  Automates quality assurance
- **GEMweb Plus Custom Connectivity**
  Automates information management
- **Multi-use PAK**
  Automates maintenance

Just press GO!

Automation and quality care go hand in hand.
Ultimate Flexibility

- Standardized platform for the lab and at the point-of-care
- Full analyte menu and integrated CO-Oximetry
- Accepts a syringe, capillary tube, or ampule
- Multiple menu and volume PAK configurations

### PAK SIZE

<table>
<thead>
<tr>
<th>1. Analytes</th>
<th>2. Type</th>
<th>3. Go</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood Gas, Hct, tHb, O₂Hb, Hb, COHb, Methb, sO₂, Total Bili*</td>
<td>Arterial</td>
<td>GO!</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Menu</th>
<th>75</th>
<th>150</th>
<th>300</th>
<th>450</th>
<th>600†</th>
<th>Onboard Use-life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood Gas, Hct, tHb, O₂Hb, Hb, COHb, Methb, sO₂, Total Bili*</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>30 days</td>
</tr>
<tr>
<td>Blood Gas, Electrolytes, Hct, tHb, O₂Hb, Hb, COHb, Methb, sO₂, Total Bili*</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>30 days</td>
</tr>
<tr>
<td>Blood Gas, Electrolytes, Glu, Lac, Hct, tHb, O₂Hb, Hb, COHb, Methb, sO₂, Total Bili*</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>30 days</td>
</tr>
</tbody>
</table>

Menus with Creat, BUN, and measured tCO₂ are in development.

* Cartridges available with or without Total Bili.
† Onboard use-life is 21 days.
Automated Quality Assurance

iQM: Intelligent Quality Management

The most accurate results, every time, for maximum efficiency and enhanced patient care.

Automatically monitors all components. Provides continuous error detection and correction.

<table>
<thead>
<tr>
<th>iQM Continuous Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔ ✔</td>
</tr>
<tr>
<td>0 — Continuous</td>
</tr>
<tr>
<td>▼ = Error automatically detected, corrected and documented immediately</td>
</tr>
<tr>
<td>✔ = Optimal test results ensured</td>
</tr>
</tbody>
</table>

Traditional QC (Manual or Auto) Eight-hour Model


<table>
<thead>
<tr>
<th>QC IN</th>
<th>Time</th>
<th>QC OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>8 hrs</td>
<td></td>
</tr>
<tr>
<td>▼ = Error undetected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>? = Questionable test results (all results from eight-hour period require review)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reduces Error Detection Time from Hours to Minutes¹,²

<table>
<thead>
<tr>
<th></th>
<th>pH</th>
<th>P₂O</th>
<th>PCO₂</th>
<th>Na⁺</th>
<th>K⁺</th>
<th>Ca²⁺</th>
<th>Glu</th>
<th>Lac</th>
<th>Hct</th>
</tr>
</thead>
<tbody>
<tr>
<td>iQM</td>
<td>3 mins</td>
<td>3 mins</td>
<td>3 mins</td>
<td>17 mins</td>
<td>3 mins</td>
<td>3 mins</td>
<td>11 mins</td>
<td>6 mins</td>
<td>3 mins</td>
</tr>
<tr>
<td>Traditional QC (Manual or Auto)</td>
<td>≥8 hrs</td>
<td>≥8 hrs</td>
<td>≥8 hrs</td>
<td>≥8 hrs</td>
<td>≥8 hrs</td>
<td>≥8 hrs</td>
<td>≥8 hrs</td>
<td>≥8 hrs</td>
<td></td>
</tr>
</tbody>
</table>

Statistical presentation of an average error detection time with 95% confidence.

“iQM: a new standard for the future of QC.”

– James Westgard, PhD, developer of the ‘Westgard Rules’

References:
IL’s patented iQM and all analytical components are included inside a single-component, self-contained PAK.

Positive Impact on Staff Time

<table>
<thead>
<tr>
<th>iQM</th>
<th>0 total hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional</td>
<td></td>
</tr>
<tr>
<td>Manual QC</td>
<td>16.5 total hrs</td>
</tr>
<tr>
<td>Traditional</td>
<td></td>
</tr>
<tr>
<td>Auto QC</td>
<td>6.5 total hrs</td>
</tr>
</tbody>
</table>

- Over 16 hours saved monthly
- Over 190 hours saved annually

This means: In a hospital with 8 GEM Premier 4000 analyzers, iQM can save over 1,500 hours annually.

FDA-cleared in 2002 for GEM Premier 3000, and again in 2006 for GEM Premier 4000, iQM is the only quality management system designed to provide continuous monitoring of the analytical process with real-time, automatic error detection, correction and documentation of all corrective actions, replacing the use of traditional external quality controls.
Automated Information Management

GEMweb Plus Custom Connectivity

True web-based, bi-directional management from any networked analyzer or PC, customized for your hospital.

The ONLY connectivity software to:

▸ Provide a simple, single user-interface
▸ Allow total, system-wide control from any networked PC or GEM Premier 4000
▸ Automate and customize operator certification and management

AND:

▸ Allows automatic review of analyzer and PAK status
▸ Alerts operator to replace PAK
▸ Offers patient history with delta versus previous result with one keystroke
▸ Consolidates iQM reports, operator competency, audit logs and positive patient ID

Delivers automated quality assurance and regulatory compliance, while significantly reducing staff time.

Integrated wireless for seamless communication to the LIS or HIS.
**GEMweb**
Automated, web-based information management
- Single, graphic user-interface
- Bi-directional operator management
- Remote analyzer review and control
- Remote iQM review
- Demographic query

**GEMweb Plus 100**
Everything GEMweb offers AND:
- Remote global/area/analyzer system configuration
- Consolidated:
  - Analyzer status and control
  - Operator management
  - iQM reports
  - Patient information management
- System-wide sample lookup database
- HIS and LIS order receiving and processing

**GEMweb Plus 200**
Everything GEMweb Plus 100 offers AND:
- Operator competency ensured through automated and customizable certification, including exams
- Advanced regulatory compliance management
- Audit log creation

**GEMweb Plus 100 & 200 Customizable Options**
More functionality, more flexibility
- Receipt of ADT transmissions, including positive patient ID verification
- Automated and customizable point-of-care order creation (solicited and unsolicited)
Automated Maintenance
Saves significant staff time and reduces training and documentation requirements.

**GEM PAK—The only single-component, multi-use cartridge on the market.**
- Self-contained; includes all testing components: sensors, CO-Ox optical cell, lysing solution, Process Control Solutions, tubing, waste container and sampler
- Stored at room temperature
- Easy front-loading
- Replaced every 30 days

**Automates the most labor- and skill-intensive processes.**
- Zero maintenance—just replace the disposable PAK monthly; no additional cartridge handling required
- Only one PAK to inventory and manage, including all solutions, sensors, and quality control
- Immediately detects errors—no hands-on troubleshooting required
- Immediately corrects errors—no hands-on corrective actions required
- Regulatory compliance reports generated automatically

PAKs contain all components for patient testing and are ideal for high- and low-volume testing.
Automation at the Bedside
Bringing Simplicity to the Point-of-Care

Standardized lab-quality results and real-time connectivity for immediate decisions anywhere in the hospital.

CVOR
Immediate, precise testing
- CO-Oximetry, the most accurate method to measure Hemoglobin, is fully integrated, offering a complete test menu
- Measured Total Hemoglobin not affected by common operative variables, unlike conductive Hematocrit

ICU
Saves time and enhances patient care
- Provides complete oxygenation status
- Only cartridge-based system to provide Lactate testing in a single sample
- Comprehensive results in a single sample for fast clinical assessments and better outcomes
- Immediately recalls patient information, enhancing safety

NICU
Fast, reliable results for tiny patients
- The only cartridge-based system to offer Total Bilirubin
- Automatic Fetal Hemoglobin detection and correction
- Capillary-tube sampling (65 µL)*
- Ideal for nitric oxide therapy

ED
Rapid, comprehensive testing†
- Only cartridge-based system to provide Lactate testing in a single sample—key to rapid implementation of sepsis protocol
- tHb for triaging trauma-related blood loss
- COHb, MetHb to assist in smoke-inhalation treatment
- Advanced GEMweb Plus connectivity—fully integrated, real-time information management

* BG, Electrolytes, Metabolites, Hct  † Basic Metabolic Panel in development: BUN/Creat and measured tCO₂
Simple and flexible, it’s the automatic choice for your hospital.

The top choice of hospitals worldwide, the GEM Premier 4000 is advanced, simple, revolutionary and is fully automating critical care testing.

Automated Quality Assurance
iQM ensures test quality—24 hours a day, seven days a week, providing continuous error detection and correction.

Automated Information Management
GEMweb Plus Custom Connectivity offers true bi-directional communication anywhere—it automates information management and provides system-wide control from any networked PC or GEM Premier 4000.

Automated Maintenance
GEM PAKs contain all testing components, are replaced every 30 days and require no refrigeration. Combined with automated detection, correction and documentation, the most labor- and skill-intensive processes are eliminated, saving significant time.

Automation at the Bedside
Flexible cartridge test volumes and menu options, including a complete CO-Oximetry panel, and standardized, lab-quality results and real-time connectivity for immediate decisions at the POC.

Just press GO!
Every member of the GEM Family delivers fast, accurate results, in the lab or at the point-of-care, for the very best patient care.

<table>
<thead>
<tr>
<th>GEM Premier Analyzers</th>
<th>GEMweb Plus Custom Connectivity</th>
<th>GEM Complementary Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>▶ GEM Premier 4000</td>
<td>▶ GEMweb Plus 200</td>
<td>▶ GEMdraw</td>
</tr>
<tr>
<td>▶ GEM Premier 3500</td>
<td>▶ GEMweb Plus 100</td>
<td>▶ GEM PCL Plus</td>
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<tr>
<td>▶ GEM Premier 3000</td>
<td>▶ GEMweb Plus Customizable Options</td>
<td>▶ GEM OPL</td>
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<tr>
<td></td>
<td>▶ GEMweb</td>
<td></td>
</tr>
</tbody>
</table>

Instrumentation Laboratory

Our Passion. Your Results.

Driven by our constant passion for innovation, IL has provided the most comprehensive and valuable diagnostic solutions for decades. From the launch of our first instrument, our integrated solutions continue to revolutionize critical care testing with more capabilities, more end-to-end automation and more flexibility.
### Technical Specifications

**Dimensions and Weight**

**Analyzer**
- H: 45.5 cm (18 in), W: 30.5 cm (12 in), D: 38.1 cm (15 in), Wt: 20 kg (44 lbs)
- H: 15.2 cm (6.75 in), W: 21.6 cm (10 in), D: 7.6 cm (8 in), Wt: 3.6 kg (8 lbs)

**Sample Volume**
- 150 µL BG/Hct/Lytes/Glu/Lac/CO-Ox or any subset of the menu that includes CO-Ox
- 100 µL CO-Ox/Total Bili
- 65 µL BG/Hct/Lytes/Glu/Lac (micro mode) (capillary only)

**Sample Type**
- Heparinized whole blood
- Heparinized plasma (Total Bili)

**Time to Results**
- All tests without CO-Ox: 70 seconds from sample introduction
- All tests with CO-Ox: 95 seconds from sample introduction
- Sample capacity: 75 – 600 tests

#### Measurement Methodology

- **Amperometric:** pO2, Glu, Lac, Creat
- **Potentiometric:** pH, pCO2, Na+, K+, Ca++, Cl–, pAO2
- **Conductivity:** Hct
- **Optical measurement following chemical lysing of the whole blood sample:** CO-Ox, Total Bili

#### Interface Protocols

ASTM or HL7 enables data transmission to a laboratory, hospital, or third-party information management system.

#### Measured Analytes

- **pH**
- **pCO2** (mmHg)
- **pO2** (mmHg)
- **Na+** (mmol/L)
- **K+** (mmol/L)
- **Ca++** (mmol/L)
- **Cl–** (mmol/L)
- **Glu** (mg/dL)
- **Lac** (mg/dL)
- **Hct** (%)
- **Hb** (g/dL)
- **O2** (mmHg)
- **CO2** (mmHg)
- **Total Bili** (mg/dL)
- **BUN**
- **Creat**
- **HCO3**
- **tCO2**

**Derived (calculated) Parameters**

- **BE(B)**
- **BE(ecf)**
- **tHb(c)**
- **sO2**
- **sO2(c)**
- **O2cap**
- **a-vDO2**
- **CCO2**
- **Qsp/Qt**
- **RI**
- **AO2**
- **Hct(c)**
- **Qs/Qt (est)**
- **O2/Hb** (%)
- **MetHb** (%)
- **COHb** (%)
- **Hb** (%)
- **O2Hb** (%)
- **HHb** (%)
- **tHb** (g/dL)
- **P/F ratio**
- **BUN/Hct**
- **Creat/Hct**

*The measured ranges reflect actual numeric value ranges the system can report.*

**Additional Information**

- **Dimensions and Weight**
- **Sample Volume**
- **Sample Type**
- **Time to Results**
- **Measurement Methodology**
- **Interface Protocols**
- **Measured Analytes**
- **Derived (calculated) Parameters**

---

**Worldwide Locations**

**US, Canada, Latin America and South America**

<table>
<thead>
<tr>
<th>Country</th>
<th>Local</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>Bedford, MA</td>
<td>+1-781-861-0710</td>
</tr>
</tbody>
</table>

**Europe, Middle East, Africa**

<table>
<thead>
<tr>
<th>Country</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Vienna</td>
<td>+43-1-823-73-10</td>
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<tr>
<td>Benelux</td>
<td>Belgium</td>
<td>+32-2-7253052</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Prague</td>
<td>+420-246-090-931</td>
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<tr>
<td>France</td>
<td>Le Pré Saint Gervais</td>
<td>+33-1-94-00-930</td>
</tr>
<tr>
<td>Germany</td>
<td>München</td>
<td>+49-89-909070</td>
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**Brazil**

<table>
<thead>
<tr>
<th>State</th>
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<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>São Paulo</td>
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<td>+55-11-41543337</td>
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<tr>
<td>Brazil</td>
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</tr>
</tbody>
</table>

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00151 Roma, Italy

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