

So advanced, it's simple.
So simple, it's revolutionary.



Introducing the New GEM Premier 4000.

The new whole blood analyzer that's so revolutionary and advanced, it makes life simple for everyone.

- ▶ Exceptionally easy to use with basic operation and virtually no maintenance
- ▶ Remarkably flexible analyte menu, including a full CO-Oximetry panel for every testing need
- ▶ iQM, IL's proprietary Intelligent Quality Management system, provides continuous, real-time monitoring and quality control
- ▶ Assures quality results and helps reduce errors, enhancing patient safety and patient care





PAKs contain all the components required for patient testing, are replaced every 30 days, and require no refrigeration.

Bringing the lab to the bedside

- ▶ **Easy-to-use** touch-screen displays with clear and concise menus make it simple to select and customize parameters and view results
- ▶ **Self-contained cartridge PAKs** incorporate all components for patient testing and are maintenance-free, maximizing uptime and eliminating staff time
- ▶ **Onboard CO-Oximetry** and a full complement of parameters for every testing need increase flexibility
- ▶ **iQM** automates test quality control and continuously detects, corrects and documents errors and corrective actions...24 hours a day, seven days a week
- ▶ **GEMweb® Plus**, a unique suite of software, enables remote access to any networked analyzer for real-time status updates and supervision of remote locations

**Designed for the laboratory
and point-of-care testing.**

GEM Premier 4000. Simple. Flexible.

Assures universal staff training, consistent test results, easy customization and ultimate monitoring and control.

- ▶ Basic operation—simply press ‘GO!’ and present sample
 - ▶ Onboard training videos and screen prompts assure maximum operator familiarity
 - ▶ Select options at the touch of a button, including micro sample and analyte panels
 - ▶ Easy access to patient history, including automatic delta calculation between the current and last sample of same sample source
- ▶ A broad range of measured analytes and onboard CO-Oximetry, with a full complement of derived parameters, provide a complete clinical assessment from a single sample.
 - ▶ Convenient self-contained cartridge PAK in a wide choice of cartridge configurations:
 - High- and low-volume testing
 - Multiple analyte menu configurations
 - Minimal setup with easy front loading and no maintenance
 - Accepts a syringe, capillary tube or ampoule
 - Stored at room temperature
 - ▶ Optional GEM PCL Plus portable coagulation module

Customizable for every setting

Test Menu	Number of Tests	Onboard Use Life
Blood Gas, Hct, tHb, O ₂ Hb, COHb, HHb, MetHb, sO ₂	75 150 300 450	30 days
Blood Gas, Electrolytes, Hct, tHb, O ₂ Hb, COHb, HHb, MetHb, sO ₂	75 150 300 450	30 days
Blood Gas, Electrolytes, Glu, Lac, Hct, tHb, O ₂ Hb, COHb, HHb, MetHb, sO ₂ , BUN*, Creat*, Total Bili*, HCO ₃ * [*]	75 150 300 450	30 days

*In development.



Easy and intuitive—simply press ‘GO!’ and present sample.



Accepts samples directly from a syringe or a capillary tube to accommodate low and micro-sample volumes for neonatal testing.

iQM—IL's patented, real-time, automated, continuous quality assurance system helps ensure optimal test results...regardless of location or operator.

- ▶ Continuously monitors and checks all critical components in real time to assure accurate results
- ▶ Immediately detects and corrects errors, unlike traditional or auto quality control systems
- ▶ Automatically performs and documents system events and corrective actions
- ▶ Assures that each patient test result meets established quality specifications and prevents reporting of results when instrument tolerance limits are exceeded
- ▶ Is based on the measurement of internal solutions and independent external materials



iQM Delta Chart Reports are automatically generated for each Process Control solution, assuring documentation compliance.



Measured, temperature-corrected values and derived (calculated) test results are prominently displayed; view patient history and enter notification information with one button touch.

GEMweb Plus—the integrated information management system for complete control...throughout the hospital system.

- ▶ Remotely view status for all networked analyzers, in real time
- ▶ Access and search patient or quality data performed on all networked analyzers from any networked PC or analyzer
- ▶ Track patient test results through a central database, regardless of location
- ▶ Receive and process orders from the HIS or LIS
- ▶ Utilize single LIS/HIS interface for multiple analyzers
- ▶ Maintain central control of all aspects of instrument configuration, including operator management
- ▶ Eliminate the need for an external PC by each analyzer



Remotely recall patient results and modify configuration for any analyzer, from any networked PC or GEM Premier 4000, for total connectivity no matter where you are—in the Intensive Care Unit, a satellite facility or the office.



GEM Premier 4000 Technical Specifications

Dimensions and Weight

Analyzer

H: 18 in, W: 12 in, D: 15 in, Wt: 44 lbs

PAK

H: 6.75 in, W: 10 in, D: 8 in, Wt: 8 lbs

Sample Volume

150 μ L BG*/Hct/Lytes**/Glu/Lac/CO-Ox or any subset of the menu that includes CO-Ox

95 μ L BG/Hct/Lytes/Glu/Lac or any subset of this menu

65 μ L BG/Hct/Lytes/Glu/Lac
(*micro mode*) (capillary only)

*BG = pH, $p\text{CO}_2$, $p\text{O}_2$

**Lytes = Na^+ , K^+ , Ca^{++} , Cl^-

Sample Type

Heparinized whole blood

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 - 450 tests

Measurement Methodology

Amperometric: $p\text{O}_2$, Glu, Lac

Potentiometric: pH, $p\text{CO}_2$, Na^+ , K^+ , Ca^{++} , Cl^-

Conductivity: Hct

CO-Ox: Optical measurement following chemical lysing of the whole blood sample

Interface Protocols

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

Measured Analytes

Analytes	Unit	Measured Range*
pH	n/a	6.80 – 8.00
$p\text{CO}_2$	mmHg	0 – 150
$p\text{O}_2$	mmHg	0 – 800
Na^+	mmol/L	100 – 200
K^+	mmol/L	0.1 – 20.0
Ca^{++}	mmol/L	0.10 – 5.00
Cl^-	mmol/L	40 – 170
Glu	mg/dL	4 – 750
Lac	mmol/L	0.1 – 20.0
Hct	%	15 – 75
tHb	g/dL	5.0 – 23.0
O_2Hb	%	-10.0 – 110.0
COHb	%	-10.0 – 110.0
MetHb	%	-10.0 – 110.0
HHb	%	-10.0 – 110.0

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

Derived (calculated) Parameters

TCO ₂	sO ₂
BE(B)	sO ₂ (c)
BE(ecf)	HCO ₃ ⁻ std
tHb(c)	HCO ₃ ⁻ (c)
Ca ⁺⁺ (7.4)	A-aDO ₂
Anion gap	paO ₂ /pAO ₂
P/F Ratio	RI
pAO ₂	CcO ₂
CaO ₂	a-vDO ₂
CvO ₂	Q _{sp} /Q _t (est)
p50	Q _{sp} /Q _t
O ₂ cap	Hct(c)

NEW **GEM[®] PREMIER 4000**
with **iQM[®]**

- ▶ **Simple**, large, touch-screen displays with clear and concise menus make it easy to analyze samples and review results
- ▶ **Flexible**, cartridge test volumes and menu options, including a complete CO-Oximetry panel for point-of-care (POC) and centralized test locations
- ▶ **iQM**, IL's proprietary Intelligent Quality Management system, helps to ensure test quality—24 hours a day, seven days a week
- ▶ **GEMweb Plus**, a unique suite of software, enables an authorized user to remotely gain access to any networked GEM Premier 4000 analyzer for real-time status updates and supervision of remote POC locations



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