



**Gaumard**<sup>®</sup>  
Simulators for Health Care Education

# TRAUMA HAL<sup>®</sup> S3040.100

Rugged, Resilient, and Tetherless

- Durable and splash proof
- Quadruple trauma limbs and bleeding wounds
- BleedSmart™ Real-time blood loss monitoring
- eCPR™ - CPR effectiveness monitor and trainer
- Wireless and tetherless up to 900 ft.
- 10 hour battery life

# TRAUMA HAL® S3040.100 | *Rugged and Resilient Trauma Simulator*

## TRAUMA WITH BLEEDSMART™

HAL's arteries bleed as a function of blood pressure and heart rate specified on wireless tablet PC. Sensors in his arms and legs respond to applied pressure and stop bleeding when tourniquet is applied correctly; his bleeding wounds at axilla and groin also respond to applied pressure and can be packed using combat gauze.



Bilateral Trauma Arms



Groin Wound



Axilla Wound



Bilateral Trauma Legs

## UNI® SOFTWARE + RUGGED TABLET

### RUGGED

Instructor's tablet PC includes a rugged "bump" case and also features wireless communications for up to 900 ft. Perfect for field conditions.

### LONG RANGE WIRELESS CONTROL

Tetherless communications range up to 900 ft.

### STREAMING AUDIO

Be the voice of Trauma HAL®; hear responses at distances up to 150 ft.

### VERSATILE INTERFACE

Expand windows to include: palettes, scenarios, branching scenarios, actions, log, monitors, speech, medications, and quick meds.

### SIMPLE INTERFACE

Physiologic parameter groups include airway, breathing, cardiac, cephalic, and circulation.

### TETHERLESS

HAL's communications, compressor, and power supply are inside the simulator, eliminating external tubes, wires and compressors. Control the simulation from up to 900 ft. away.

### TESTED

Trauma HAL® is based upon the proven technology found in the HAL® 3000 which was independently tested and approved. MIL-STD tests included vibration, EMI testing for avionics, high and low temperatures, humidity, rapid decompression at 45000 feet, explosive atmospheres, and flight testing in fixed and rotary winged craft.

### REALISTIC

- Streaming voice and pre-recorded verbal responses in any language
- Difficult airway with tongue edema, laryngospasm, and pharyngeal swelling
- Chest rise and fall responding to commands from wireless tablet PC
- Palpable ribs
- Height 178 cm/70 in
- Radial, brachial, carotid and femoral pulses operate continuously and are dependent upon blood pressure
- Articulating neck, arms, and legs feature rugged joints for field use
- Interchangeable arms and legs





### DECONTAMINATION CAPABLE

Fully functional during soap and water decon spray procedure.



### OXYGEN SATURATION

Oxygen saturation can be measured using real equipment. Optional real CO2 expiration.



### CPR SENSORS

Sensors detect and log ventilations and compressions. Includes eCPR™ with UNI® software.

### INTRAOSSUEOUS ACCESS

Intraosseous infusion system with interchangeable and replaceable tibial bones.

### 4 LEAD ECG

Optional 12-lead ECG. Use real equipment to obtain HAL's ECG



### LIQUID SECRETION

Independent liquid secretion from ears, eyes, and mouth.



### CYANOSIS

Cyanosis and vital signs respond to physiologic conditions, and interventions.



### BLOOD PRESSURE

Blood pressure can be taken using real equipment

### GASTRIC DISTENTION

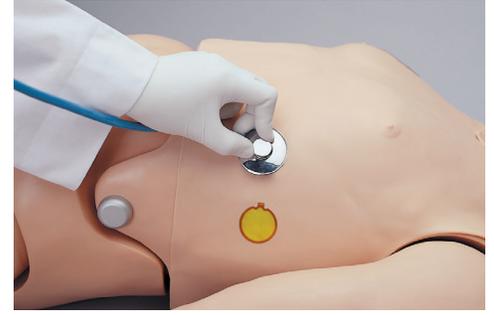
Gastric distention with esophageal intubation and excess BVM ventilation.

### LIQUID SUCTION

Practice gastric liquid suctioning techniques.

### CHEST TUBE PLACEMENT

Simulate pneumothorax exercise Defibrillation and Pacing Perform defibrillation and pacing with real AED pads



### HEART AND LUNG SOUNDS

Multiple realistic heart sounds and anterior lung sounds.



### PROGRAMMABLE AIRWAY

Programmable airway: tongue edema, laryngospasm, and pharyngeal swelling.



### NASAL & ORAL INTUBATION

Endotracheal intubation using conventional ETTs. Unilateral chest rise with right mainstem intubation

### BOWEL SOUNDS

Bowel sounds in four quadrants

### BILATERAL LEG BLEED

Bleeding arteries in both right and left legs. Internal 1.5L reservoir and auxiliary input.



### AXILLA AND GROIN WOUNDS

Sensors in wounds detect appropriate pressure reducing and then stopping blood flow from the wound. Wounds accept combat gauze.



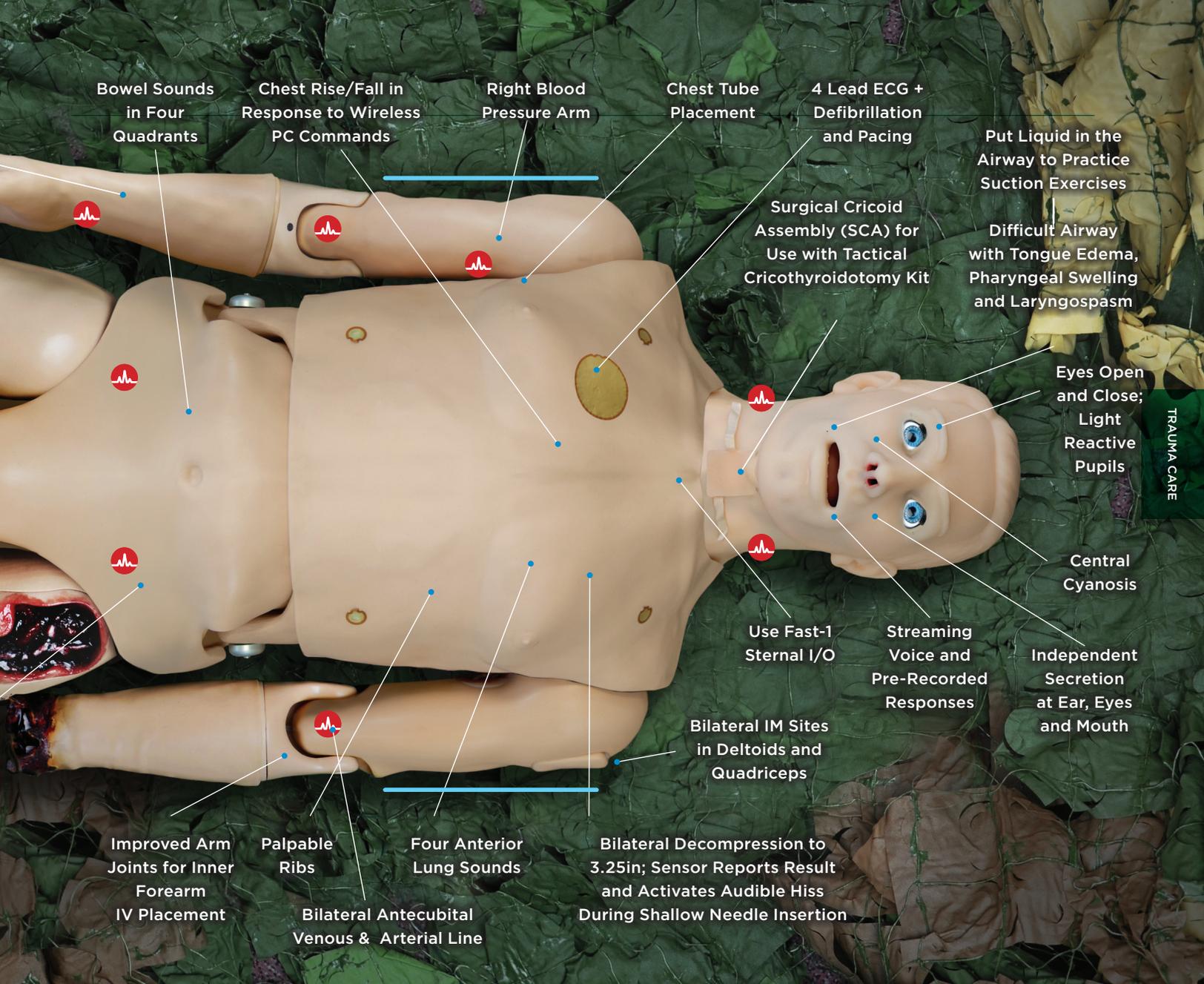
### NEEDLE DECOMPRESSION

Features palpable ribs to locate 2nd intercostal space for bilateral needle decompression. Sensors detect needle insertion and activate audible hiss during shallow needle insertion.



### TRAUMA ARM AND LEG

Arteries bleed as a function of BP + HR specified on wireless tablet PC. Bleeding ceases when tourniquet is applied 2in above wound or 1 or 2in above the joint.



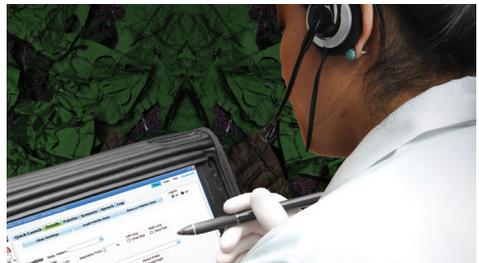
**SURGICAL CRICOID**

Perform lateral and medial incisions, then use “Trach-hook” used by Combat Medics to lift cricoid for airway assessment and insertion of “trach-tube”.



**FAST-1 STERNAL I/O**

Use FAST-1 Locator and position it below the sternal notch; sites are replaceable and either accept medications or can be used to collect fluids.



**STREAMING AUDIO**

Pre-recorded verbal responses in any language and bi-directional streaming audio up to 150 ft. away.

## ANATOMY AND CONNECTIVITY

- Full body adult 70 inches (178 cm), 88 lbs. (40 kg)
- Rugged shoulder and hip joints allow dragging and carrying
- Splash proof for CBRNe water spray decontamination
- Self-contained design; all operating components and blood reservoirs stored inside the body
- Wireless and tetherless control; at distances of up to 900ft.
- Fully operational on battery power for up to 10hrs (AC power supported)
- Interchangeable trauma/healthy lower arms and legs
- Designed for fast scenario resets with automatic self-refilling reservoir system
- Ruggedized for outdoor climate

## NEUROLOGIC

- Blinking eyes with reactive pupils
- Software controlled fluid secretion at ears, eyes, and mouth
- Mild and severe convulsions
- Wireless streaming audio; be the voice of Trauma HAL and hear responses at distances up to 150 ft.
- Library of prerecorded responses
- Programmable custom verbal responses in any language

## AIRWAY

- Head tilt/chin lift
- Naso/orotracheal intubation: ETT, supraglottic airway, King® LT
- Retrograde intubation
- Fiber optic intubation
- Programmable difficult airway: tongue edema and pharyngeal swelling
- Laryngospasm with tight seal preventing intubation
- Surgical airway for cricothyrotomy, tracheotomy, and tracheal hook exercises
- Supports suctioning liquids from the airway and lungs
- Visible gastric distention with esophageal intubation

## BREATHING

- Visible chest rise with BVM
- Ventilation detection
- Shallow and deep needle decompression with audible hiss and needle placement detection up to 3.25in.
- Unilateral chest rise and right mainstem intubation
- Spontaneous chest rise and fall with normal and abnormal respiratory patterns
- Selectable anterior lung sounds
- Bilateral chest tube insertion

## CARDIAC

- Selectable normal and abnormal heart sounds
- Preprogrammed ECG rhythm library with customizable variations
- 4-Lead ECG monitoring using real equipment (12-lead option available item S3040.100.120)
- Defibrillation and pacing using real energy

## CPR

- eCPR™ Real-time CPR performance monitoring
  - » Time to CPR
  - » Compression depth/rate
  - » Chest recoil
  - » Compression interruptions
  - » Ventilation rate
  - » Excessive ventilation
  - » Time to defibrillation
  - » Smart CPR voice coach
- Real end-tidal CO<sub>2</sub> capability (option S3040.100.078)
- Durable chest recoil design

## CIRCULATION

- Programmable cyanosis
- Measure blood pressure using a real blood pressure cuff
- Detectable oxygen saturation using real OSAT monitors
- Antecubital IV access
- Bilateral carotid, radial, brachial (antecubital fossa), femoral, popliteal, and pedal pulses
- Blood pressure dependent pulses
- Sternal I/O infusion supports F.A.S.T.1
- Tibia I/O access
- Bilateral deltoid and quadriceps IM injection sites

## TRAUMA

- Quadruple trauma limbs: Interchangeable trauma lower arms and legs included
- Bleeding axilla and groin wounds detect applied pressure
- Trauma site arterial bleeding synched with heart rate and blood pressure
- Blood pressure Intraosseous access bleeding rate
- Arm and legs tourniquet sensors
- Pressure on femoral artery reduces or stops distal bleeding in leg
- On-board 1.5 Lt. blood reservoir
- Automatic self-refilling reservoir system
- On-screen blood loss monitor and reservoir level

## DIGESTIVE

- Internal fluid bladder with male genitalia for catheterization
- Bowel sounds in four quadrants

## UNI® UNIFIED SIMULATOR CONTROL SOFTWARE

- Unified Interface Design
- Manual and Automatic Operating Modes
- 3D Patient Visualization
- Virtual patient monitor
- Scenario designer
- Preprogrammed scenario library
- eCPR™ - CPR effectiveness monitor and trainer
- Lab report designer
- Medication library with editor
- Questionnaire form designer
- Time stamped event logging
- Provider actions tracker
- UNI Control View Replay

## TURNKEY PACKAGE INCLUDES

- Wireless tablet PC, protective “bump” case, and UNI software license
- RF Communications Module
- Battery charger/Power supply
- L/R Healthy lower arms and legs
- L/R Trauma lower arms and legs
- Axilla and groin wound inserts
- Replacement surgical tracheas
- Soft carrying case
- Hands-free blood refill bag
- User Manual
- One-Year Limited Warranty
- Extended warranty plans available

## TRAUMA HAL® S3040.100

### S3040.100

Patented; other patents pending

Available in the following ethnic skin tones at no extra charge:



Light / Medium (standard) / Dark

## OPTION

### CO2 EXHALATION

#### S3040.100.078

- Real and measurable EtCO<sub>2</sub>
- 10 programmable levels of CO<sub>2</sub> output
- Internal CO<sub>2</sub> system allows tetherless operation

### AUTOMATIC “PHYSIOLOGIC” CONTROL

#### S3040.100.600

- Intuitive interface and automation makes simulation easy
- Vital signs are generated in real time
- Drug library with medications
- Use of medications change conditions in real time mimicking real clinical situations
- Blood loss automatically affects related vital signs

### ADVANCED 12 LEAD ECG

#### S3040.100.120

- Use real 12 lead ECG monitor
- Defibrillate, cardiovert or pace
- HAL’s dysrhythmia
- Design 12 lead ECGs using our editing feature:
- Create and modify waveforms even on a “point-by-point” basis
- Monitor ECG using real monitoring equipment
- Use the integrated MI module to:
  - » Specify occlusions, ischemia, injury, necrosis
  - » Modify infarctions quickly and easily
  - » Resultant dynamic 12 lead ECG quickly generated

## D/C VIRTUAL MONITOR

### S3040.100.002

- Interactive virtual patient monitor displays vital signs in real time
- Display numeric values and waveforms
- Customizable layout, threshold alarms

## WOUND KITS

### ADULT EMERGENCY WOUND KIT

WK100

11 wound types • 18 total wounds

### ADULT BURN WOUND KIT

WK105

5 wound types • 10 total wounds

### ADULT TRAUMA WOUND KIT

WK110

11 wound types • 18 total wounds

## CONSUMABLES

### INTRAOSSIOUS STERNAL ACCESS SITE

S3040.100.121

### SET OF 5 SURGICAL TRACHEA INSERTS

S3040.100.035

### SET OF 10 TRACHEA SKIN COVERS

S3040.100.122

### SET OF 10 CRICOTHYROID MEMBRANES

S3040.100.037.R2

### BLOOD CONCENTRATE

S3040.100.080

## REPLACEMENT PARTS

### IV FILL KIT (STANDARD)

S3040.100.048

### EXTERNAL BLOOD FILLING KIT

S3040.100.050

### MINERAL OIL

S3040.100.181

### TRAUMA ARM

S3040.100.005

### TRAUMA LEG

S3040.100.004

### AXILLA WOUND INSERT

S3040.100.109A

### GROIN WOUND INSERT

S3040.100.109G

### AXILLA HEALTHY INSERT

S3040.100.108A

### GROIN HEALTHY INSERT

S3040.100.108G

### BATTERY CHARGER

S3040.100.011

### RF MODULE

S3040.100.206

### CHEST SKIN REPLACEMENT -NO ELECTRONICS

S3040.100.018

## INDEPENDENT AEROMEDICAL RESEARCH LABORATORY TESTS CONDUCTED ON COMPARABLE HAL® S3000 SIMULATOR

TEST	MIL STANDARD	DESCRIPTION	COMMENT
Vibration	810F Method 514.5	3 Axis Testing	Simulates Vibrations in Jet/UH-60/C-130
EMI	461E Methods CE101/102 and RE 102	Conducted and Radiated Emissions	To Assure that HAL does not Interfere with Avionics
Aircraft Chamber	Use Test Aircraft	100dB Environment	Simulate High Noise Levels Inside Military Aircraft
High Temperature	810F Method 501.4	Up to 49° C / 120° F	
Low Temperature	810F Method 501.4	Down to 0° C / 32° F	
Humidity	810F Method 501.4	29.5° C / 85° F and 95% Humidity	Hot and Wet Conditions
Altitude + Emergency Decompression	810F Method 500.4	Altitude and Emergency Decompression Testing	Alt. to 18,000 ft. Decomp. at 45,000 ft./3 cycles
Explosive Atmosphere	810F Method 511.4	Verify Operation in Explosive Fuel-Air Atmosphere	
Flight Testing	Use Test Aircraft	Rotary and Fixed Wing	Take off/landing; Banking; Flight; Others

# TRAUMA HAL® S3040.100 | *Rugged and Resilient Trauma Simulator*

## REQUEST A QUOTE

14700 SW 136th Street  
Miami, Florida 33196-5691

P.O. Box 140098  
Coral Gables, Florida 33114-0098

Toll Free USA  
Call 8:00 a.m. - 7:30 p.m. ET  
Monday - Friday  
800.882.6655

Worldwide  
305.971.3790

Fax  
305.252.0755  
24 hours

Web Site  
[www.gaumard.com](http://www.gaumard.com)

Sales / Customer Service  
[sales@gaumard.com](mailto:sales@gaumard.com)

## ABOUT GAUMARD®

We are your direct source for health care education needs. Gaumard® is family owned and operated.

## PLACE YOUR ORDER

By telephone, fax, or on-line at  
[www.gaumard.com](http://www.gaumard.com)

## WE ACCEPT

VISA, MasterCard, American Express

## WARRANTY

Gaumard products are covered by a one-year limited warranty. Terms and conditions apply.

Please visit [www.gaumard.com](http://www.gaumard.com) for details.

## EXTENDED WARRANTY & TRAINING

Extended warranty plans and training are available.

## TECHNICAL SUPPORT

Available 8:00 a.m. to 7:30 p.m. ET weekdays, or email us at [support@gaumard.com](mailto:support@gaumard.com)  
Phone: 786-478-3838

## ONLINE SUPPORT 24/7

Download articles, instructions, teaching tips. View instructional videos on demand.

## REPAIR

Gaumard® offers repair services and parts. For more information visit [www.gaumard.com](http://www.gaumard.com)



**Gaumard®**  
Simulators for Health Care Education