

# HumaStar 600

## Random Access Clinical Chemistry System

- > High throughput
- > Reliable performance
- > Workflow-optimized handling

### Clinical Chemistry



Movie

**Human**

Diagnostics Worldwide

# HumaStar 600

## High throughput random access clinical chemistry system

### Efficient operation

- › Less than 5l water consumption
- › Ready to use HUMAN System Reagents
- › Up to 600 results/hour w/o ISE
- › Up to three reagents/method
- › 160 reusable reaction cuvettes
- › Two independent reaction carousels
- › 24 hours onboard reagent storage
- › Random access for reagents and samples
- › Minimal reagent consumption
- › Automated pre/post-dilution

### Workflow-optimized handling

- › Easy to use software
- › 48 cooled reagents onboard
- › Barcode recognition of reagents, samples and racks
- › Convenient loading of reagents, samples and consumables
- › 95 samples (5 racks x 19)
- › Stat rack for immediate measurement
- › Liquid level sensor



*HumaStar 600 is compact and versatile*

### Reliable performance

- › Clot detection
- › Validated HUMAN assay applications
- › Internal and external probe washing
- › Two independent pipettors



*Convenient loading of reagents*



*Convenient loading of samples*



*Sample racks for a variety of primary tubes and samples cups*

# Versatility

Made for cost-saving workflow integration

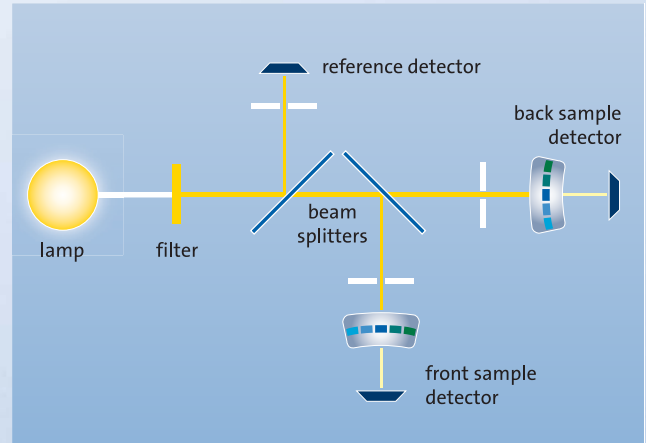


Two independent pipettor arms for a fast and constant workflow

## Clinical chemistry and immunoturbidimetry –

### Quality Made in Germany

- › More than 45 HUMAN high quality system reagents:
  - Ready-to-use and barcoded
  - Long onboard and calibration stability (up to 60 days)
- › Validated and optimized applications:
  - Minimal reagent consumption
  - High sensitivity and wide linearity range
- › Up to 5 open channels for user defined methods



Single-lamp, triple-channel photometer for minimum maintenance and reliable performance

## ISE (optional)

- › Serum / plasma or urine samples
- › Up to 240 tests / hour
- › 6 to 12 months onboard stability of electrodes
- › ISE unit retrofittable

## State-of-the-art optical system

- › High precision – small filter bandwidth
- › High resolution
- › Large measuring range
- › Suitable for most tests between 340 and 800 nm (12 filters onboard)



Cuvette-washing units in each reaction tray



Reusable cuvettes



ISE-Module

# Logical and Flexible

A user interface and features that simplify operation and quality assurance

## Flexible cycle time

- > Individual optimization of each assay run
- > Faster run

## Calibration validity check

- > Highest quality of results

## Cuvette quality monitor

- > Ensuring reliability of results
- > Optional manually initiated cuvette washing

## Easy graphics

- > Color coding
- > Immediate access to problem solution
- > Minimizing operator error

## Adaptive settings

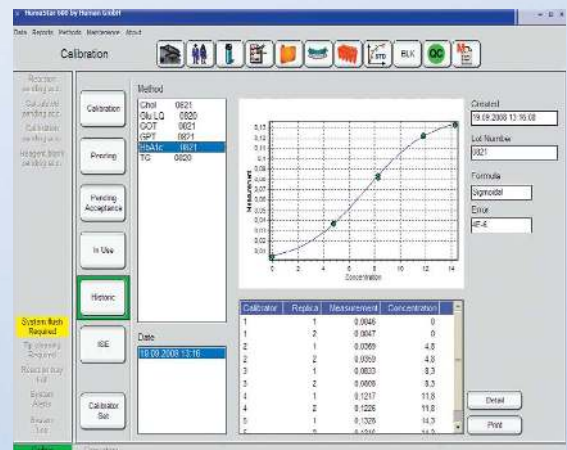
- > Flexible operations through user-defined panels
- > Simplified distribution of workflow
- > Enhanced reliability of results due to separation of critical assay combinations

## Reagent and waste minimization

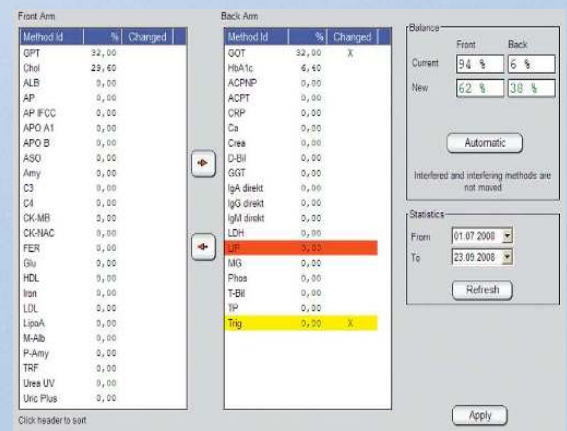
- > Reagent consumption monitor alerts before run

## Variable result output

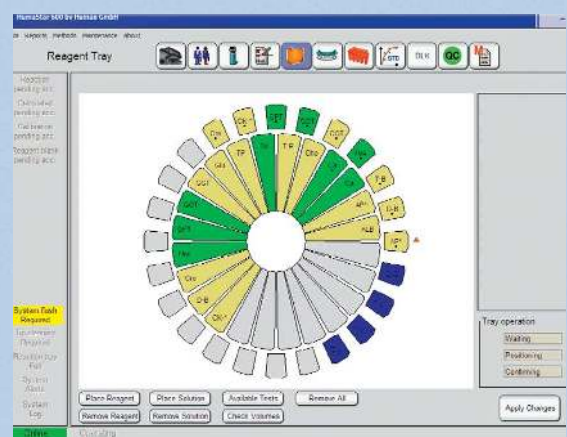
- > LIS-capable
- > Multiple printing options



Calibration details



Optimization of throughput



Reagent tray monitor

# Software

## Easy to operate and versatile in use

### Intuitive user software

- › Intelligent inventory management
- › Multi reagent placement for any given method
- › LOT specific calibration
- › Multiple password-protected access levels
- › Automatic maintenance information
- › Built-in QC modules
- › Automatic daily back-up

### QC

- › Levey-Jennings and Youden-plot
- › Westgard rules

### Calibration

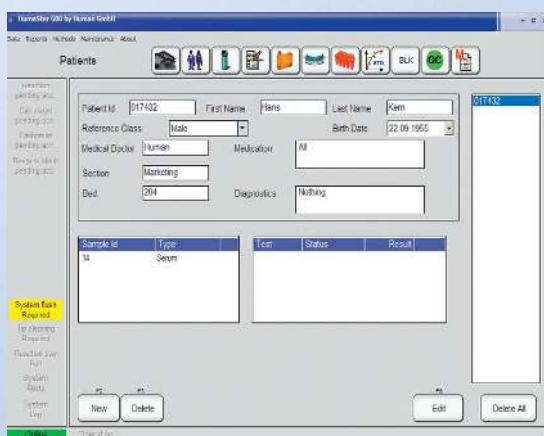
- › Single- and multi-calibrators available
- › Automatic dilution for multipoint calibration

### Data management and transfer

- › ASTM E 1394-87 standard
- › Real-time LIS interface
- › Bi-directional RS232C
- › Windows™ based software
- › Export and import of data

### Maintenance

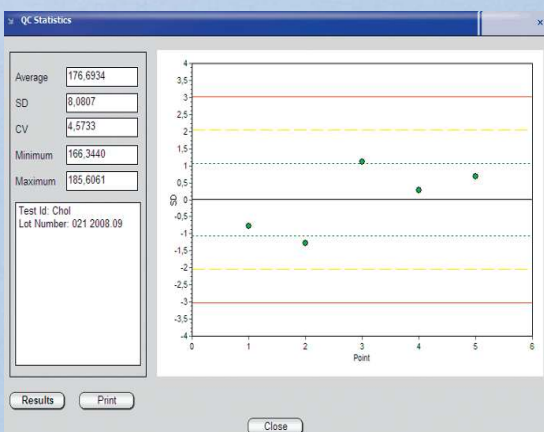
- › Remote access option – error log facilitating diagnosis
- › Only 5 minutes/daily preventive maintenance



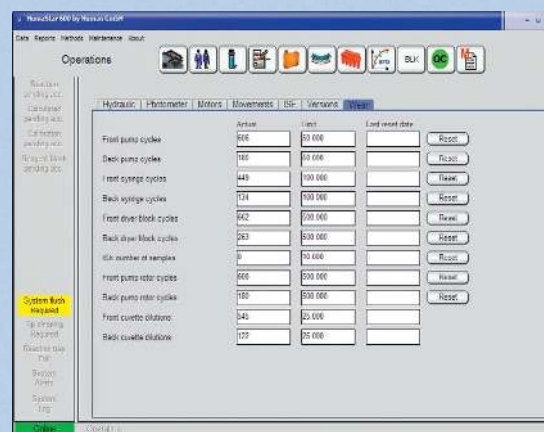
Patient demographics



Export function



Levey-Jennings plot



Maintenance menu

# HumaStar System Reagents

Comprehensive parameter menu with exceptional performance

Assays	Tests / Kit	Tests / Kit
<b>Proteins</b>		
Albumin	4 x 60	6 x 150
anti-Streptolysin-O	1 x 100	1 x 210
Apolipoprotein A1	1 x 70	
Apolipoprotein B	1 x 70	
Complement C3	1 x 70	
Complement C4	1 x 70	
C-reactive Protein	1 x 100	1 x 250
Cystatin-C	2 x 100	
Ferritin	1 x 90	
HbA1c	1 x 135	
Homocysteine	1 x 250	
Immunoglobulin A (IgA)	1 x 100	1 x 250
Immunoglobulin G (IgG)	1 x 100	1 x 250
Immunoglobulin M (IgM)	1 x 100	1 x 250
Lipoprotein (a)	1 x 90	
Microalbumin	1 x 90	
Rheumatoid Factors	1 x 100	1 x 210
Transferrin	1 x 70	
Urinary Total Protein	3 x 50	

Assays	Tests / Kit	Tests / Kit
<b>Substrates and Metabolites</b>		
Bilirubin direct	2 x 100	5 x 210
Bilirubin total	2 x 150	5 x 210
Cholesterol	2 x 100	3 x 150
Creatinine (Jaffé)	2 x 150	5 x 250
Creatinine (enzyme)	1 x 95	1 x 275
Glucose	2 x 150	6 x 210
HDL Cholesterol	2 x 100	2 x 180
Inorganic Phosphorus	4 x 30	4 x 60
LDL Cholesterol	2 x 90	
Total Protein	2 x 150	6 x 210
Triglycerides	3 x 60	3 x 210
Urea / BUN	2 x 150	5 x 250
Uric Acid	2 x 100	5 x 250

<b>Electrolytes</b>		
Calcium	3 x 100	3 x 430
Chloride*	2 x 50	
Potassium	1 x 120	1 x 250
Sodium	1 x 120	1 x 250

<b>Electrolytes (ISE direct)</b>	
Kalium, Lithium, Potassium, Sodium	ISE Reagent Pack

\* under development

Assays	Tests / Kit	Tests / Kit
<b>Enzymes</b>		
Acid Phosphatase	3 x 50	
Alkaline Phosphatase	2 x 150	3 x 250
alpha-Amylase	2 x 100	3 x 260
Cholinesterase	2 x 100	
CK-NAC	2 x 180	
CK-MB	2 x 100	
gamma-GT	2 x 100	3 x 250
GOT/ASAT	2 x 200	5 x 310
GPT/ALAT	2 x 200	5 x 310
LDH (SCE)	2 x 100	2 x 180
Lipase	2 x 100	
Pancreatic Amylase	2 x 100	

<b>Trace Elements</b>		
Iron	2 x 100	2 x 180
Magnesium	4 x 30	4 x 60
TIBC	1 x 100	



#### Accurate and reliable results

- > Extensive validation on HumaStar systems
- > Onboard and calibration stability monitoring

#### Plug and run

- > Ready to use
- > Filled in barcoded reagent containers

#### Comprehensive and economic

- > More than 45 parameters available
- > Offered in two kit sizes – tailored to your needs

#### Made in Germany

HUMAN's production site in Magdeburg



# HumaStar 600 System

## Technical data

<b>Technical data</b>	<b>HumaStar 600</b> incl. barcode reader, ISE prepared ISE Module Na, K, Cl, Li	REF 16660 16663-03
<b>Mode</b>	Validated system with 5 open channels Random access or batch mode STAT functionality by sample STAT functionality in batch mode by reagent Automatic sample dilution for abnormal Automatic sample pre/post-dilution Auto-rerun at self-specified limits Special work mode for immunoturbidimetric tests	
<b>Throughput</b>	Up to 600 tests/h Up to 780 tests/h with ISE	
<b>Analysis</b>	Endpoint with sample or reagent blank Kinetic and fixed time measurement Mono- and bi-chromatic Sample blank compensation	
<b>Calibration</b>	Single and multi-point calibration or factor Up to 10 calibrators for multi-point calibration	
<b>Quality control</b>	Levey-Jennings and Youden-plot Westgard multi rules	
<b>Backup</b>	Automatic backup procedure	
<b>Samples</b>	<b>Sample volume:</b> 2 to 100µl per test (in 1 µl steps) <b>Sample tray:</b> 95 positions (5 racks x 19 positions) Sample barcode for all positions Primary tubes up to 13 x 100 mm possible Adjustable for pediatric and small sample cups	
<b>Reagents</b>	48 single reagents and 4 with ISE unit Up to 3 reagents per method 5 to 500 µl/test (in 1 µl steps) Permanent reagent cooling at 9° C +/- 2° C for room temperature between 15 and 30 °C Substrates, Enzymatic, Turbidimetric	
<b>Reaction</b>	2 x 80 reusable plastic cuvettes (6 mm) <b>Reaction volume:</b> 180 to 500µl <b>Reaction temperature:</b> 37± 0.1 °C <b>Reaction time:</b> 0 to 10 min.	
<b>Pipetting</b>	Needle shock detector Liquid level detector Clot detector	
<b>Wash station</b>	6 stage washing unit <b>Water consumption:</b> < 5 l/hour	
<b>Optical system</b>	Double beam with reference beam 12 discrete wavelengths (340, 380, 405, 450, 490, 505, 550, 590, 620, 650, 700, 750 nm) <b>Photometric range:</b> -0.1 to 3.6 OD Single or double wavelength reading	
<b>ISE unit (optional)</b>	Na+, K+, Cl- and Li+ optional Direct ISE measurement of 240 tests/h <b>Sample material:</b> serum/plasma and urine	
<b>Data-management</b>	Windows™ based software Data export and import functionality <b>LIS:</b> ASTM E1394-97 standard, real-time, bi-directional	
<b>Printouts</b>	Customer definable reports, optimized printouts of results, work lists, serum list, calibration, quality control etc.	
<b>Environment</b>	Temperature max. 30°C, Humidity max. 80% non-condensing	
<b>Power</b>	110...240 VAC, 50/60 Hz, maximum 1.400 VA UPS included	
<b>Dimensions</b>	100 (W) x 74 (D) x 113 (H) cm	
<b>Weight</b>	180 kg	

**Human**

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