HumaStar 600

Random-Access Clinical Chemistry System

So easy to handle

- High throughput
- Reliable performance
- Workflow-optimized handling

CoreLab DX

CLINICAL CHEMISTRY



Movie

Clinical Chemistry Line

Human
Diagnostics Worldwide

HumaStar 600

High-Throughput Random-Access Clinical Chemistry System

Efficient operation

- Less than 4 l water consumption
- Ready to use HUMAN System Reagents
- Up to 600 results/hour w/o ISE
- Up to three reagents/method
- 160 re-usable reaction cuvettes
- Two independent reaction carousels
- 24 hour on board 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 on board
- 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



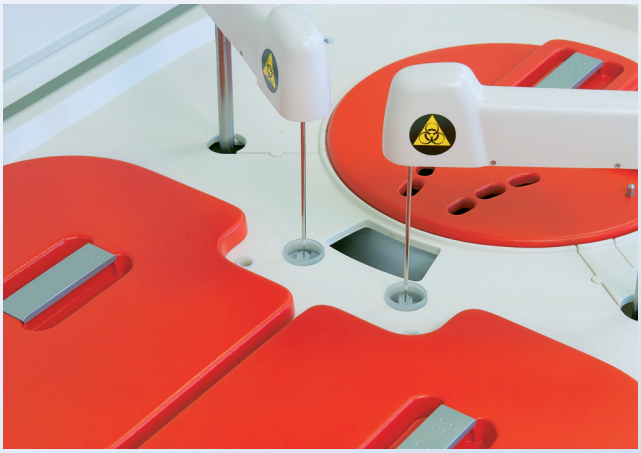
Convenient loading of samples



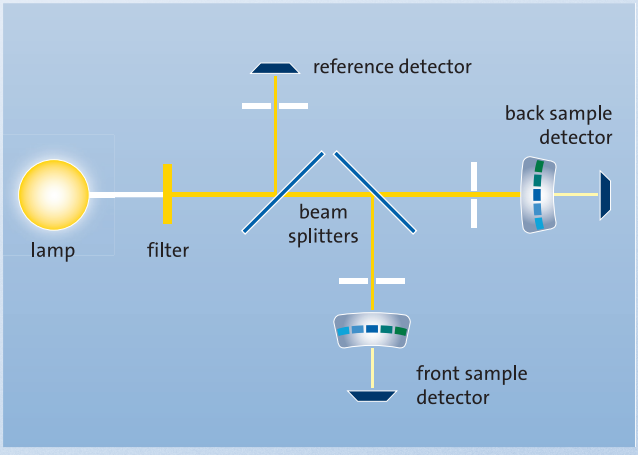
Sample racks for a variety of primary tubes and samples cups

Versatility

Made for Cost-Saving Workflow Integration



Two independent pipettor arms for fast and constant workflow



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

Clinical chemistry & immunoturbidmetry – Quality Made in Germany

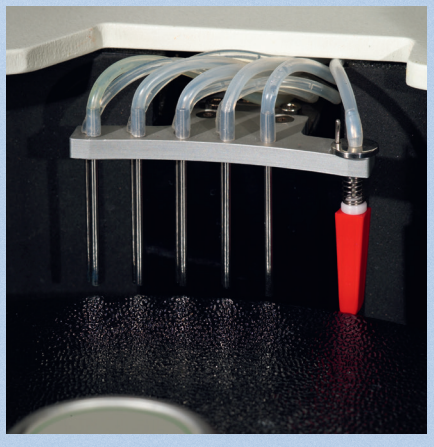
- More than 40 HUMAN high quality system reagents:
  Ready-to-Use
  Barcoded
  Long on board stability (up to 60 days)
  Long calibration stability (up to 60 days)
- Validated and optimized applications:
  Minimal reagent consumption
  High Sensitivity and wide linearity-range
- Up to 5 open channels for user defined methods

ISE (optional)

- Serum / plasma or urine samples
- Up to 100 samples / hour
- 6 to 12 months on board 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 on-board)



Cuvette-washing units in each reaction tray



Re-usable cuvettes



ISE-Module

Logical and Flexible: a User Interface and Features that Make Operation & QC Simple

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

- Colour-coding
- Immediate access to problem solution
- Minimizing operator error

Adaptive settings

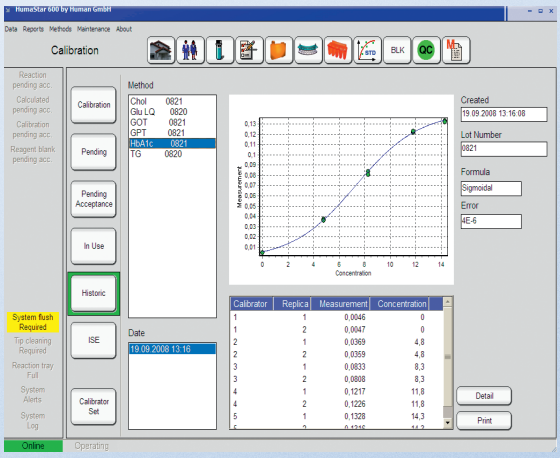
- Flexible operations through user-defined panels
- Simplified distribution of workflow
- Enhanced reliability of results due to separation of critical assay combinations

Reagent and waste minimization

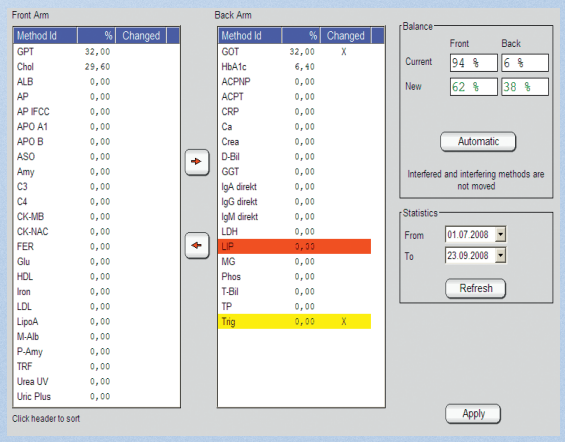
- Reagent consumption monitor alerts before run

Variable result output

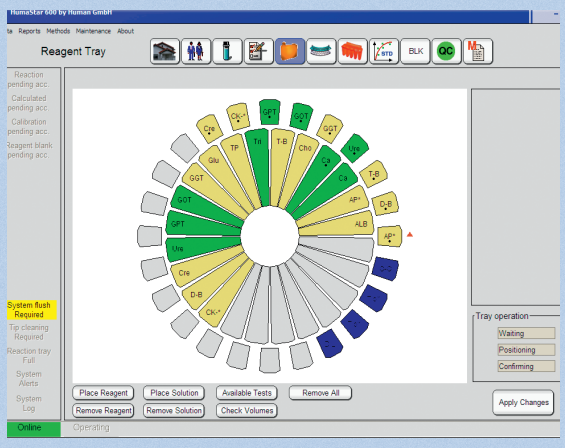
- LIS-capable
- Multiple printing options



Calibration details



Optimization of throughput



Reagent tray monitor

Software –
as Easy to Use as it is Versatile

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

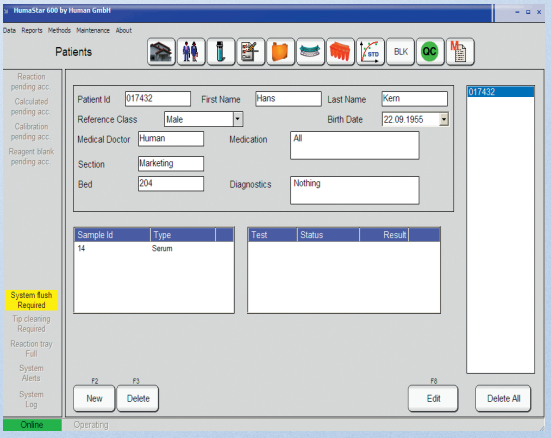
- Single- and multi-calibrators available
- Automatic dilution for multipoint calibration

Data management and transfer

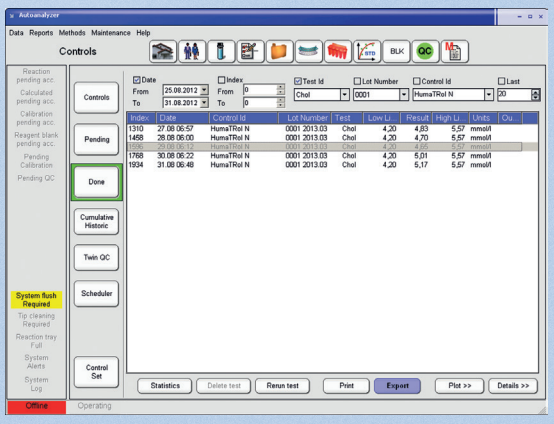
- ASTM E 1394-87 standard
- Real-time LIS interface
- Bi-directional RS232C
- Windows™ based software
- Export and import of data

Maintenance

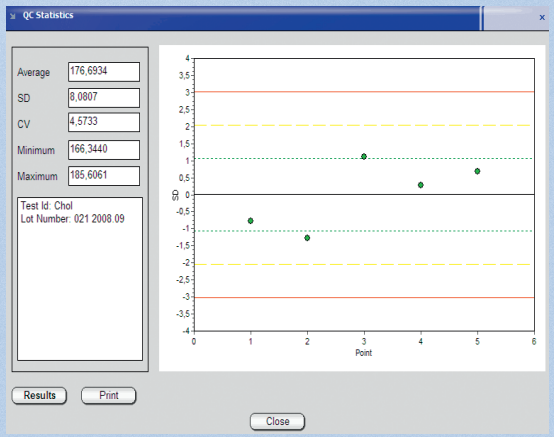
- Remote access option – error log facilitating diagnosis
- Only 5 minutes/day preventive maintenance



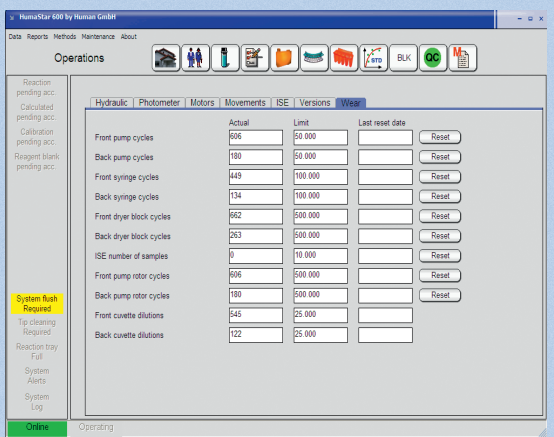
Patient demographics



Export function



Levey-Jennings plot



Maintenance menu

System Reagents & Consumables

System reagents

Enzymes	Test	Tests/kit	Cat. No.
Acid Phosphatase	3 x 50	150	10660600
Alk.Phosphatase opt. liquicolor	3 x 250	750	12027600
Alk.Phosphatase liquicolor	3 x 250	750	12117600
alpha-Amylase liquicolor	3 x 260	780	12028600
CK-MB liquiUV	2 x 100	200	12118600
CK NAC activated liquiUV	2 x 180	360	12015600
gamma-GT liquicolor	3 x 250	750	12023600
GOT (ASAT) IFCC mod. liquiUV	5 x 310	1550	12021600
GPT (ALAT) IFCC mod. liquiUV	5 x 310	1550	12022600
LDH SCE mod. liquiUV	2 x 180	360	12014600
Lipase liquicolor	2 x 100	200	12006600
Pancreas-Amylase liquicolor	2 x 100	200	12009600

Substrates			
Albumin liquicolor	6 x 150	900	10560600
auto-Bilirubin-D liquicolor	5 x 210	1050	10741600
auto-Bilirubin-T liquicolor	5 x 210	1050	10742600
Cholesterol liquicolor	3 x 150	450	10028600
Creatinine (enzym) liquicolor	1 x 300	300	10053600
auto-Creatinine liquicolor	5 x 250	1250	10052600
Glucose liquicolor	6 x 210	1260	10260600
HbA1c liquidirect	1 x 135	135	10770600
HDL Cholesterol liquicolor	2 x 180	360	10084600
Homocysteine liquiUV	1 x 250	250	111406000
LDL Cholesterol liquicolor	2 x 90	180	10094600
Total Protein liquicolor	6 x 210	1260	10570600
Triglycerides liquicolor^{mono}	3 x 210	630	10724600
Urea liquiUV	5 x 250	1250	10521600
Uric Acid liquicolor^{plus}	5 x 250	1250	10694600

Electrolytes			
Calcium liquicolor	3 x 430	1290	10011600
Magnesium liquicolor	4 x 60	240	10010600
Phosphorus liquirapid	4 x 60	240	10027600
Iron TPTZ liquicolor	2 x 180	360	12290600
Potassium liquiUV	1 x 75	75	10120600
Sodium liquicolor	1 x 75	75	10113600

Immunoturbidimetry reagents

Immunology	Test	Tests/kit	Cat. No.
Complement C3	1 x 70	70	11110600
Complement C4	1 x 70	70	11113600
Immunoglobulin IgA direct	1 x 250	250	11501600
Immunoglobulin IgG direct	1 x 250	250	11502600
Immunoglobulin IgM direct	1 x 250	250	11503600

Anemia			
Ferritin	1 x 90	90	11610600
Transferrin	1 x 70	70	11115600

Lipoproteins			
Apolipoprotein A1 (APO A1)	1 x 70	70	11101600
Apolipoprotein B (APO B)	1 x 70	70	11102600
Lipoprotein (a), Lp(a)	1 x 90	90	11105600

Inflammatory and rheumatoid tests			
Anti-Streptolysin-O (ASO)	1 x 210	210	11251600
CRP	1 x 250	250	11241600
Rheumatoid Factors (RF)	1 x 210	210	11261600

Kidney diseases			
Cystatin-C liquidirect	2 x 100	200	11150600
Microalbumin	1 x 90	90	11120600



HUMAN – high quality system reagents

Quality control

Multi-Level

	Unit	Cat. No.
Humatrol N	*6 x 5 ml*	13511
Humatrol P	*6 x 5 ml*	13512
› Control sera on bovine basis		
Serodos®	*6 x 5 ml*	13951
Serodos® plus	*6 x 5 ml*	13151
› Control sera from human donors		
Turbidos	*4 x 3 ml*	13010
› Control sera for immunoturbidimetric assays		
› 2 levels, high and normal		

Single-Level

CK-MB Control	*4 x 2 ml*	13611
Cystatin-C Control	*3 x 1 ml*	11153
HbA1c Control Blood normal	*2 x 0.5 ml*	10775
abnormal	*2 x 0.5 ml*	
Homocysteine Control	*3 x 1.5 ml*	11143

Calibrator / Standards

Multi-Level

Autocal	*4 x 5 ml*	13160
› Multicalibrator for automated analyzers		

Single-Level

CK-MB Calibrator	*2 x 1 ml*	13612
HbA1c Calibrator Set	*4 x 0.5 ml*	10776
Homocysteine Calibrator Set	*2 x 3 ml*	11145
Potassium Standard	*2 x 3 ml*	10126
Sodium Standard	*2 x 3 ml*	10114

Standards for immunoturbidimetric tests

	Unit	Cat. No.
ASO Standard	*2 x 1 ml*	11351
APO A1/B Standard	*2 x 1 ml*	11104
C3/C4/TRF Standard	*2 x 1 ml*	11117
CRP Standard	*2 x 1 ml*	11341
Cystatin-C Calibrator Set	*5 x 1 ml*	11155
Ferritin Calibrator 500	*4 x 0.5 ml*	13020600
IgG, IgA, IgM Calibrator Set	*5 x 2 ml*	11504
Lp(a) Standard	*2 x 0.5 ml*	11004
Microalbumin Standard	*2 x 1 ml*	11124
RF Standard	*2 x 3 ml*	11361

Consumables

Reaction Cuvettes	*1200 pcs.*	16661/1
Chimney	*16 pcs.*	16660/01
Diluent	*4 x 20 ml*	16663/10
Cuvette Clean	*6 x 55 ml*	16663/20
Tip Cleaning Kit Tip Clean + Tip Rinse	*4 x 20 ml*	16663/25
Wash Additive	*4 x 25 ml*	18971

ISE consumables*

ISE Cleaner	*6 x 20 ml*	16660/11-01
ISE Urine Diluent	*4 x 20 ml*	16660/13-01
ISE Tri-Level QC kit	*3 x 10 ml*	16663/40
Na Electrode	*1 pc.*	16660/4-01
K Electrode	*1 pc.*	16660/5-01
Cl Electrode	*1 pc.*	16660/6-01
Ref. Electrode	*1 pc.*	16660/7-01
ISE Standard Pack	*710 ml*	16660/14-01

ISE Standard Pack reagent consumption

No. of serum samples per day	No. of samples per ISE Standard Pack
10	680
30	1380
50	1750

*only usable for new ISE module Cat.no. 16663-03

HumaStar 600 System

Technical data

HumaStar 600
incl. barcode reader, ISE prepared — Cat. No. 16660
ISE Module Na, K, Cl — Cat. No. 16663-03

Mode
Closed 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-dilution and post-dilution
Auto-Rerun at self-specified limits
Special work mode for immunoturbidimetric tests

Throughput
Up to 600 tests/h
Up to 800 tests/h with ISE

Analysis
End point with sample or reagent blank
Kinetic and fixed time measurement
Mono- and bi-chromatic
Sample blank compensation

Calibration
Single and multi-point calibration or factor
Up to 10 calibrators for multi-point calibration

Quality control
Levey-Jennings and Youden plot
Westgard multi rules

Backup Samples
Automatic backup procedure
Sample volume: 2 to 100µl per test (in 1 µl steps)
Sample tray: 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

Reagents
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

Reaction
2 x 80 re-usable plastic cuvettes (6mm)
Reaction volume: 180 to 500 µl
Reaction temperature: 37± 0.1 °C
Reaction time: 0 to 10 min.

Pipetting
Needle shock detector
Liquid level detector
Clot detector

Wash Station
6 stage washing unit
Water consumption: < 4 l/hour

Optical system
Double beam with reference beam
12 discrete wavelenghts (340, 380, 405, 450, 490, 505, 550, 590, 620, 650, 700, 750 nm)
Photometric range: -0.1 to 4.0 A
Single or double wavelength reading

ISE unit (optional)
Na+, K+, Cl- and Li+ optional
Direct ISE measurement of 100 samples/h
Sample material: serum/plasma and urine

Data-management
Windows™ based software
Data export and import functionality
LIS: ASTM E1394-97 standard, real time, bi-directional

Printouts
Customer definable reports, optimized printouts of results, work lists, serum list, calibration, quality control etc.

Environment
Temperature max. 30°C,
Humidity max. 80% non-condensing

Power
110/220 V, 50/60 Hz, 1.400 VA
UPS included

Dimensions
100 (W) x 74 (D) x 113 (H) cm

Weight
180 kg

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Human
Diagnostics Worldwide

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