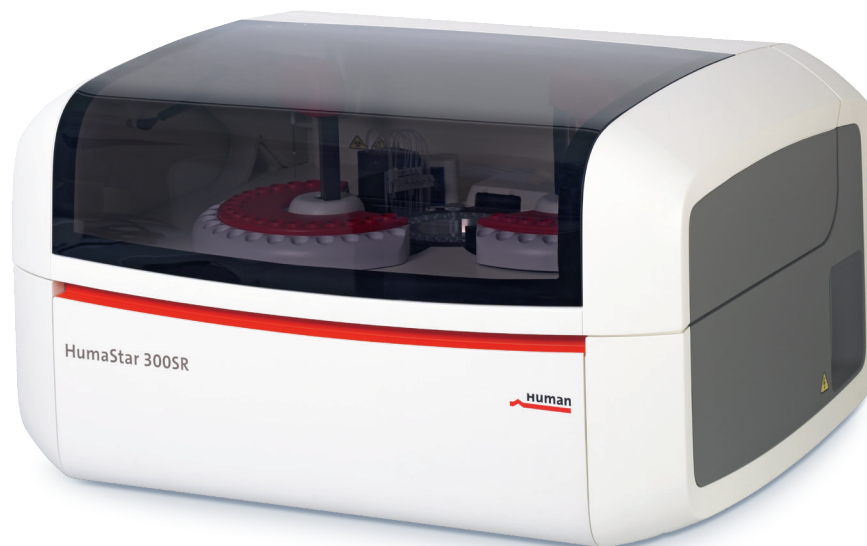


Clinical Chemistry Line

More than 50 years of experience make the difference

- › Intelligent solutions for small to medium size laboratories
- › Broad product range from one source
- › Validated applications and settings for HUMAN reagents

Clinical Chemistry

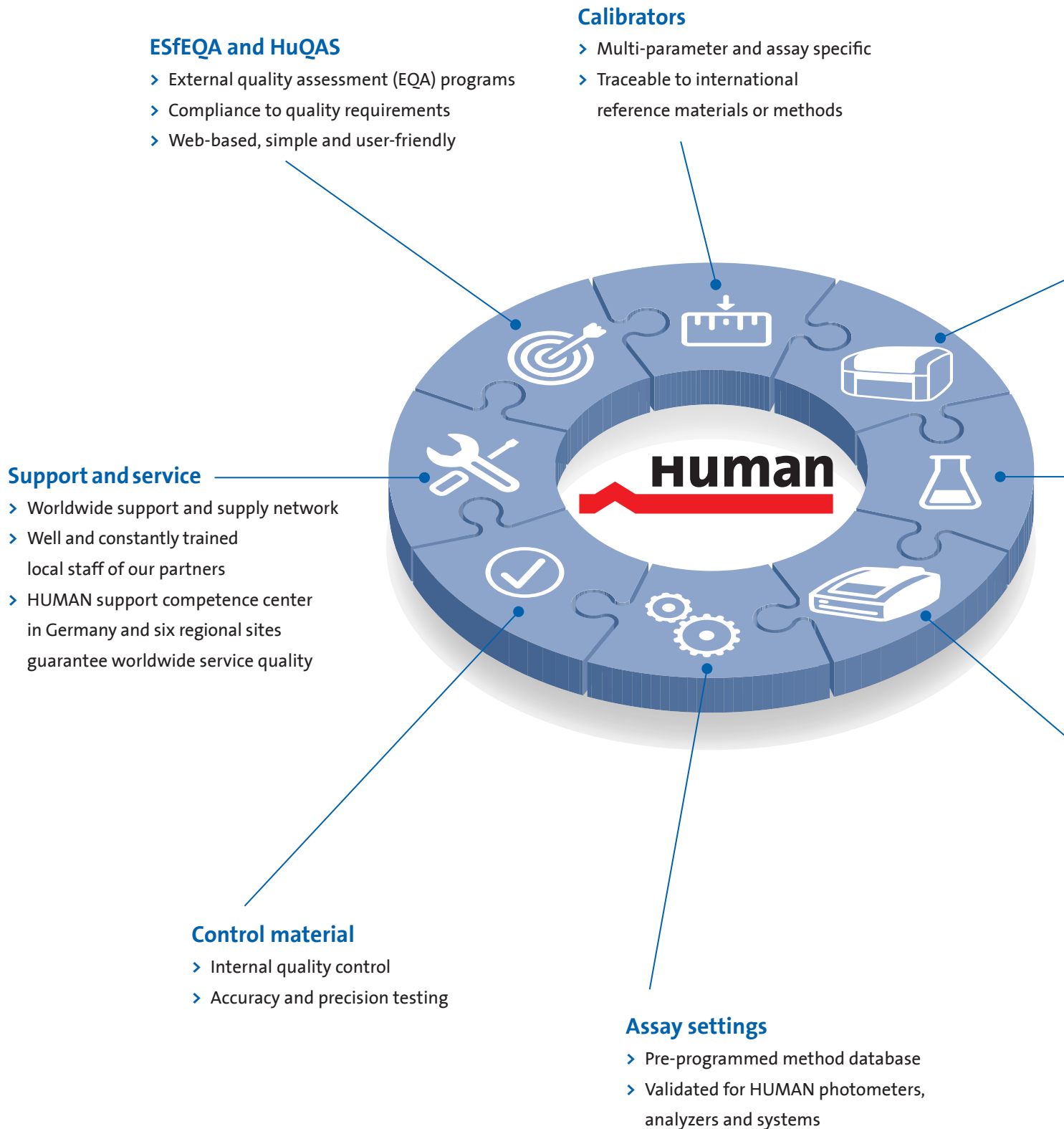


HUMAN

Diagnostics Worldwide

Clinical Chemistry Line

Perfect matching of all components for quality and efficiency



*The number of tests/day is based on an eight-hour shift with a typical throughput of 2-5 hours.

Device by throughput

Systems*

HumaStar 600



900 to 2250 tests / day

HumaStar 300SR



440 to 1100 tests / day

HumaStar 200



260 to 650 tests / day

Analyzers*

HumaStar 100



200 to 500 tests / day

Photometers

HumaLyzer 4000
HumaLyzer Primus



Up to 100 tests / day

HumaStar analyzers and systems

- > For entry level up to high throughput demands

Reagents

- > Multipurpose and system reagents
- > Multiple kit sizes
- > Ready to use
- > Long shelf life, open vial and onboard stability

HumaLyzer semi-automatic photometers

- > Small laboratories
- > Backup solution

Clinical Chemistry Assay Panel

Multipurpose and system reagents from A-Z



Multipurpose reagents for manual and automated use

- > Multiple kit sizes
- > Ready to use
- > Liquid stable
- > Validated applications and settings for HUMAN analyzers and photometers

For more information

www.human.de



	Multipurpose reagents	System reagents
Albumin (ALB)	■	■
Alkaline Phosphatase (ALP, AP)	■	■
alpha-Amylase (AMY, AMS)	■	■
anti-Streptolysin-O (ASL, ASO)	■	■
Apolipoprotein A1 (Apo A1)	■	■
Apolipoprotein B (Apo B)	■	■
Bilirubin direct (DBIL)	■	■
Bilirubin total (TBIL)	■	■
Calcium (Ca)	■	■
Chloride (Cl)	■	■
Cholesterol (CHOL)	■	■
Cholinesterase (CHE)	■	■
CK-MB (CK-MB)	■	■
Complement C3 (C3)	■	■
Complement C4 (C4)	■	■
C-reactive Protein (CRP)	■	■
Creatin Kinase (CK)	■	■
Creatinine (CREA)	■	■
Cystatin-C (CYSTC)	■	
Ferritin (FER)	■	■
gamma-GT (GGT)	■	■
Glucose (GLUC)	■	■
GOT/ASAT (AST, SGOT)	■	■
GPT/ALAT (ALT, SGPT)	■	■
HbA1c (HbA1)	■	■

Quality Control

External quality assessment service

In laboratory medicine, external quality assessment (EQA) plays a critical role in ensuring reliable analytical results. EQA is important for improving the laboratory's quality management system as it is a measure of laboratory performance. The international standard ISO 15189:2012 requires participation in proficiency testing for all tests offered by a laboratory. We recommend two partners because their programs provide peer-groups for HUMAN systems:



ESfEQA and HuQAS are HUMAN's recommendations for a web-based, international external quality assessment (EQA) program. It helps laboratories to ensure precise, reliable, and comparable results, irrespective of where in the world they are obtained. ESfEQA and HuQAS are unique due to their powerful HUMAN peer groups. Both are our accredited EQA programs which support the HUMAN peer groups in order to guarantee and increase the statistical security of results with HUMAN products.

- **Quality control**

Regular external review provides certainty about the diagnostic quality of your work.

- **Increased diagnostic quality**

Systematic errors are identified.

- **Assessment of status quo**

Compare the measured results and thus the performance at national and international levels.

- **Competitiveness**

National requirements* may allow you to participate in training and qualification measures.

- **Global availability**

You can participate wherever HUMAN products are used.

Visit the homepages of our partners and get in contact

ESfEQA: www.esfeqa.eu/en or contact ESfEQA at info@esfeqa.eu

HuQAS: www.huqas.org or contact HuQAS at info@huqas.org



ESfEQA



HuQAS



Internal quality control

Control material

Quality assurance of your laboratory results

Multi-parameter controls:

- › **HumaTrol N / HumaTrol P**, lyophilized bovine serum.
Applicable for enzymes, substrates/metabolites, electrolytes and trace elements.
- › **SERODOS®/ SERODOS®plus**, lyophilized human serum.
Applicable for enzymes, substrates/metabolites, electrolytes and trace elements.
- › **TURBIDOS 2-level**, liquid human serum.
Applicable for most protein assays.

Assay-specific controls:

- › CK-MB control, 2-level
- › Cystatin-C control, 2-level
- › HbA1c control blood, 2-level
- › Homocysteine control, 2-level



Calibrators

Prerequisite for accurate testing

HUMAN offers multi- and assay-specific calibrators for clinical chemistry reagents.

AUTOCAL, multi-calibrator, lyophilized human serum.

Applicable for HUMAN clinical chemistry reagents.

Assay-specific calibrators :

- › anti-Streptolysin-O
- › Apolipoprotein A1 / B
- › CK-MB
- › Complement C3 / C4 & Transferrin
- › C-reactive protein
- › Cystatin-C
- › Ferritin
- › HbA1c
- › Homocysteine
- › Immunoglobulins A / G / M
- › Lipoprotein (a)
- › Microalbumin
- › Potassium
- › Rheumatoid factors
- › Sodium
- › Urinary Total Protein



HumaLyzer Semi-automatic Photometers

Perfectly suited for small laboratories or as a backup solution

- > HUMAN settings pre-programmed and validated
- > Further settings user-programmable
- > Readings in flow cell or cuvette mode
- > Multiple types of reaction and calibration (incl. multipoint)



HumaLyzer Primus

REF 18200

The compact semi-automatic allrounder

- > Wavelengths: 340, 405, 500, 546, 620 nm and free positions
- > Total of 60 programmable settings
- > Software: English, Spanish, French, Russian
- > Memory for 2,200 results, QC, calibration
- > LCD display 240 x 64 pixels
- > Comprehensive QC statistics module
- > Incubation at 25°C, 30°C or 37°C
- > HumaCube incubator available (optional)

Accessories

HumaCube incubator 220 VAC

REF 17050

HumaCube incubator 110 VAC

REF 17070



HumaLyzer 4000

REF 18250

Top-class semi-automatic photometer

- > Wavelengths: 340, 405, 505, 546, 578, 620, 700, 750 nm
- > Total of 144 programmable settings
- > Software: English, Spanish, French
- > 8 GB memory for results, QC, calibration (SD-Card, expandable)
- > Color touchscreen 640 x 480 pixels
- > Remote access for support
- > Low energy consumption
- > Extremely quiet
- > LIS (ethernet, unidirectional)
- > Integrated incubator with 10 round and 2 square positions



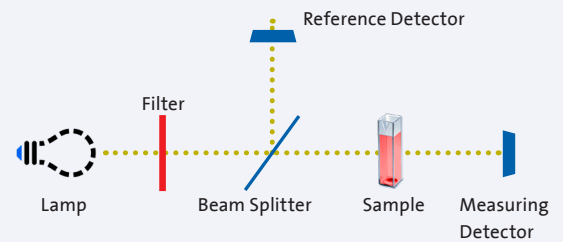


Powerful and easy to use

- > Large color touchscreen, intuitive user interface with HUMAN icon-based software
- > User guided workflows and applications
- > Workflow optimization by using a worklist for sample input
- > Searchable result database with option to print patient report
- > Graphic charts for QC, reaction and calibration

Designed for use in remote areas

- > Photometer unit completely sealed protected by dust filter at air inlet
- > Internal metal coating against electro-magnetic disturbance
- > Temperature regulation for minimum aspiration of dust
- > Remote use possibilities with optional battery pack and solar panel
- > Reflector lamp for low energy consumption and long battery life



Quality and precision with reference detector technology

The light of the lamp is divided into a measuring channel and a reference channel. The reference channel can compensate for drifts and fluctuations of the lamp or the filters.

- > Higher precision of results by reduction of signal noise
- > Significantly longer lamp life
- > Quick start from standby mode

Remote support and simple maintenance

- > Secure remote control via internet enables fast service and support
- > Support backup with detailed information to facilitate trouble shooting
- > Easy update of software / methods via USB or network
- > Removable side panel enables easy access to user-replaceable lamp

HumaStar Analyzers

For small to medium size laboratories

One concept – two instruments

- > Random access clinical chemistry analyzer
- > Tailored solution to your throughput need
- > Eco-friendly - low water consumption



HumaStar 100

REF 16890

- > Constant throughput of 100 tests per hour



HumaStar 200

REF 16895

- > Up to 200 tests per hour

Comprehensive features

- > Less than 1L/h (HS100) or 2L/h (HS200)
- > 80 reusable Bionex® cuvettes
- > 8-step wash station
- > Primary tubes and sample cups
- > Reagent cooling
- > 30 reagent and 60 sample positions
- > Internal sample barcode reader
- > Needle shock detector
- > Capacitive liquid level detector
- > Large liquid containers with level sensors
- > Method defined washing programmes
- > Windows 10®, USB compatible
- > LIS via ethernet, ASTM, bidirectional
- > Software designed for touch screen
- > Continuous reagent cooling independent from main power switch

Easy and efficient

- > Automatic pre- and post-dilution
- > Minimal water and energy consumption
- > Minimal user maintenance
- > Removable sample tray
- > Choice of three different sample trays
- > Primary tubes up to 16x100 mm and sample cups
- > Removable reagent tray
- > 50 ml or 20 ml reagent bottles available
- > Printing on Windows compatible printer

Safety first

- > Intelligent flagging system and extensive error log
- > Counter for components life cycle and maintenance
- > Two types of systemic and special washing solution
- > Routine check and blank for each individual cuvette
- > Validity limits for methods and reactions programmable
- > Reagent integrity check
- > UPS 230V included in standard delivery



HumaStar
100|200

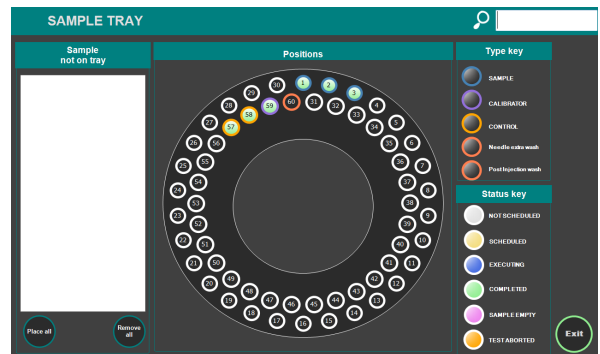


Movie



User software – versatile and easy to use

- Software designed for touchscreen use
- Intuitive user interface
- Numerous features to ease daily routine



Sample tray

Intelligent software design and architecture

- Smart graphical user interface for convenient operation
- Continuous loading of samples and reagents
- Random-access and STAT
- Free choice of execution order
- Extended walk-away capability
- Results archive with cumulative charts
- Programmable automatic start up routine
- Multiple work lists
- Multi-language software: English, French, Spanish
- Method and reagent monitor (volumes, available tests, calibration, QC status)



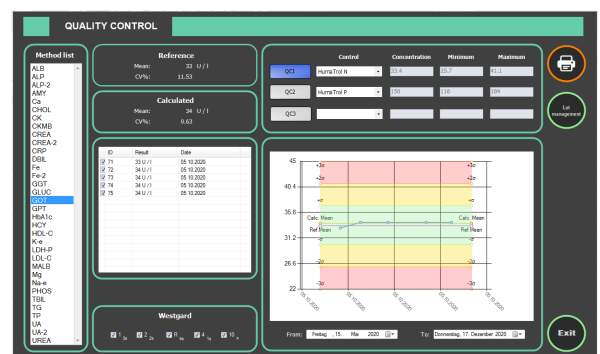
Test inspection

QC options

- Levey-Jennings plots and Westgard multi rules
- Up to 3 QC levels per test
- QC monitor and reports
- Method statistics: including test counter, CV%, mean, graphical trend analysis

Calibration

- Automatic pre-dilution for calibrators
- Up to 8 calibrators per method

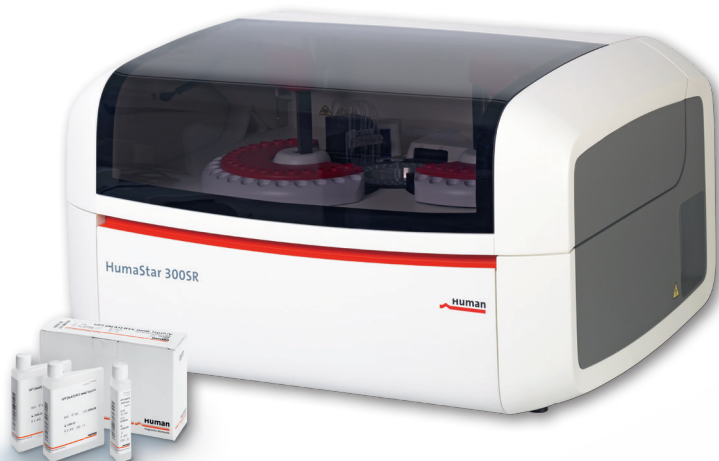


Quality control

HumaStar Systems

Your choice for system solutions

- > Ready to use system reagents available in two kit sizes
- > Pre-programmed and validated settings for HUMAN system reagents
- > Low water consumption



HumaStar 300SR

REF 16930

Medium throughput random access system

- > Up to 300 tests per hour
- > 3 open channels for user defined method
- > Barcode reader for samples and reagents
- > 60 positions for samples and solutions
- > 40 cooled positions for reagents and solutions
- > Continuous programming and loading
- > LIS: Bi-directional
- > Multi-language software:
English, French, Spanish
- > UPS 230V included in standard delivery



ProClean 2.0 Technology

Eco-friendly

- > Minimal carry-over – dual solution wash station
- > Low water consumption – less than 3 l/h
- > Separation and reduction of biohazard waste

Rock-solid and reliable

- > Proven hardware and software quality
of HumaStar 100 and 200

Efficient operation

- > Multi-step cuvette wash station
- > Up to 56 days reagent onboard stability
- > Intuitive software designed for touchscreen
- > Huge variety of primary and secondary
sample tubes usable

Intuitive and powerful software

- > Full traceability to reagents, calibrations and
settings
- > Searchable result database
- > Automatic outlier detection and unit conversion
- > Method specific wash options

Accessories

	REF
Personal computer with Windows®OS	18992P
Touchscreen LCD monitor	18995MT
LCD Monitor 19"	17901M
Laser printer	18993L



HumaStar 300SR



Movie



Convenient loading of reagents

HumaStar 600

REF 16660

High throughput random access system

- > Up to 600 tests per hour
- > Up to 780 tests per hour with ISE (Na, K, Cl)

- > 5 open channels for user defined settings
- > Barcode reader for samples and reagents
- > 95 positions for samples
- > 48 cooled positions for reagents
- > Continuous programming and loading
- > LIS: Bi-directional, host query
- > Multi-language software: English, Spanish, Russian, Chinese, Portuguese
- > UPS 230V included in standard delivery

Workflow-optimized handling

- > Easy-to-use software
- > Convenient loading of reagents, samples & consumables
- > STAT rack for immediate measurement
- > Liquid level sensor

Efficient operation

- > Two independent reaction carousels
- > Up to 60 days reagent onboard stability
- > Clot detection
- > Optional ISE module (Na, K, Cl)
- > Less than 5 l/h water consumption

Accessories

	REF
ISE module field installation kit for Na,K, Cl	16663-03
Personal computer with Windows®OS	18992P
Touchscreen LCD monitor	18995MT
LCD Monitor 19"	17901M
Laser printer	18993L



HumaStar 600



Movie

HumaLyte ISE Systems

For small to medium size laboratories



HumaLyte Plus³

REF 17470/10

Direct ISE for 3 parameters

Na⁺ | K⁺ | Cl⁻



HumaLyte Plus⁵

REF 17470/20

Direct ISE for 5 parameters

Na⁺ | K⁺ | Cl⁻ | pH* | iCa⁺⁺

One concept – two instruments

- > Analysis time < 60 sec per sample
- > For testing serum, whole blood (heparin), plasma (heparin) or diluted urine
- > Dedicated HumaLyte reagents
- > Refillable electrodes
- > Optional autosampler for 20 samples and STAT
- > LCD touchscreen
- > Internal thermal printer
- > Memory for 200 samples, QC
- > Quality control database

Reagents

REF

Reagent pack HumaLyte Plus³

17470/82

Reagent pack HumaLyte Plus⁵

17470/83



Accessories

REF

HumaLyte Autosampler

17470/30

- > Walkaway capability on demand
- > Easy add-on
- > 20 sample cup positions + 2 STAT



HumaLyte Plus



Movie

* Used for correction of iCa results only!

Voices from the Market

Impressive global availability, reliability and service quality



“We have been using HUMAN products since 1996, such as HumaStar 600, HumaStar 300, Humalyte and Humalyzer 4000. We like the quality and reliability of the products, as well as the technical support. The instruments are easy to use, very accurate and offer a perfect performance. The reagents are stable and excellent.”

Sarahi Palma Galo
Hospital Militar -
Honduras



“What I appreciate about HUMAN is the quality of products, the immediate support and the well-educated HUMAN team. Since January 2019, we are using HumaStar 300SR. It is very precise and accurate and after 3.5 years without major services other than changing the lamp, it worked without any problems.”

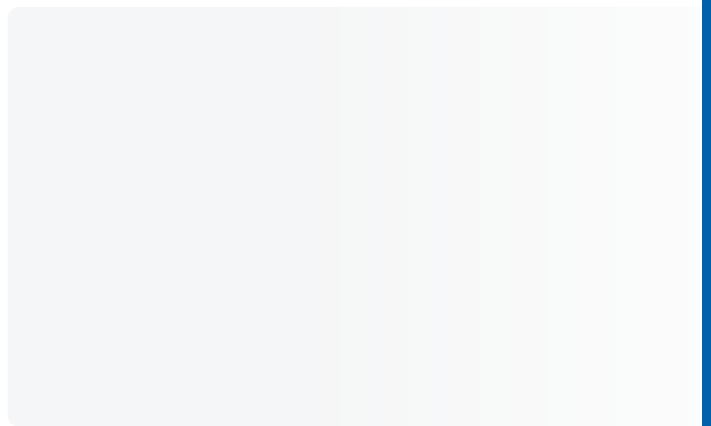
Dr. Jelica Vucovic - Head of the laboratory
Private clinic Kuca Zdravlja laboratory Humalab -
Serbia

Service quality that matters



HUMAN carefully selects and supports local sales partners. Local engineers are constantly trained and are in close contact with our regional sites and our competence centre in Wiesbaden. Together we will ensure that you not only get great products, but also great support.

Your local distribution partner



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Human

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