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www.mt.com

For more information



Quality certificate
 Development, production and testing according to ISO 9001.



Environment management system according to ISO 14001.



"Communauté Européenne"
 This mark gives you the assurance that our products conform with the latest directives.

Laboratory Catalog 2008

Laboratory Catalog



Balances
 Software
 Titration
 Density Meters
 Refractometers
 pH Meters & Electrodes
 Thermal Analysis
 Pipettes
 Automated Chemistry
 Service



Analytical Excellence to Improve Customer Processes

METTLER TOLEDO

Advancing Your Research

Technologies, software, application solutions: METTLER TOLEDO defines progress with numerous innovations. And thereby constantly sets new standards, since innovations permanently optimize laboratory processes. Efficiency, integration, quality: No matter where the focus for optimization of your processes lies, METTLER TOLEDO has the solutions.

Laboratory Solutions

Service

We offer a full range of support options including flexible service packages, technical assistance, obsolescence advice and instrument training.

Balances

From simple weighing tasks to sophisticated applications we have a balance to suit your needs – as well as an extensive range of accessories.



Titration

For quantitative determination of your specific substances, our range of titration equipment and accessories includes general and Karl Fischer models.



Density- & Refractometers

Our range includes benchtop, portable and combined instruments for accurate determination of density and refractive index.



pH Meters & Electrodes

You can measure almost anything with our extensive range of bench and portable meters and electrodes, often automatically and according to GLP.

Service XXL Solutions

The most comprehensive range of services offered on a global level, combines knowledge and experience to help you maintain equipment within specifications while optimizing uptime.

► www.mt.com/autochemservice

Consulting and Education

To continually improve productivity, you need to ensure that your technology and talent are fully optimized. We offer a wide range of technical consulting and educational services including live and on-demand webinars.

Live and On-demand Web Seminars

These interactive webinars, presented by members of our technology and applications consulting team, give you an opportunity to learn more about specific areas of interest, including:

- Process development
- Crystallization
- Chiral chemistry
- Safety
- Particle processing
- Process Analytical Technology (PAT)
- Sample management
- Synthesis
- Pressure chemistry
- Emerging applications

► www.mt.com/webinars2008



Pharmaceutical



Chemical



Petrochemical



Polymer



The MonARC™ in-process FTIR system can track key reactants, products, intermediates and impurities in-line and in real time, providing tighter control of processes, improved batch cycle time, increased yield, improved process efficiency and safety.

► www.mt.com/monarc



The Lasentec® D600P with FBRM® technology is designed for pilot and plant reactor use. Lasentec® FBRM® is in-process, real-time technology suitable for crystallization, or virtually any solids or dispersed-phase concentration.

► www.mt.com/lasentec

www.mt.com/autochem

For more information

Software

We have developed a variety of software solutions to allow you to control and network your instruments' measurements from anywhere.



Pipettes

The RAININ pipette line guarantees success in the laboratory. The unique LTS system makes pipetting easy and protects the user from long-term injuries.



Thermal Analysis

Modular instruments, coupled with sophisticated automatic sample handling allow even the smallest samples to be reliably measured.

Automated Chemistry

Find out how our innovative products can help you dramatically reduce the time to discover and develop new compounds by speeding up your workflow.



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Value-adding Solutions for Customers Worldwide

Laboratory Solutions



Our laboratory instruments are the foundation of research labs all over the world. We are the market leader in balances, the most commonly used instrument in the lab. In addition, scientists turn to our analytical instruments, such as titrators and thermal analysis, when they need details on composition or properties of liquids or substances. Information generated by our instruments can be analyzed and managed in our application-specific software and interfaced with our customers' information systems.

Our pipettes, widely used in labs to measure and dispense small volumes of liquid, lead the market because of their innovative ergonomic design. Our proprietary designs and disposable tips ensure reliable performance while preventing repetitive strain injuries.

We shorten time-to-market for life sciences customers by accelerating the synthesis, purification and process research and development of drug candidates through integration, automation and sophisticated software solutions.

METTLER TOLEDO has strong worldwide leadership positions. More than 80 percent of our instrument sales are from products that are global leaders in their segment. We have one of the most extensive global sales and service organizations among precision instrument companies, with approximately 4,500 or more than one-half of our employees providing sales and service in 37 countries. In R&D, approximately 800 professionals work daily on maintaining our technology lead. An increasingly large percentage of our R&D investment is for software development.

Process Analytics



Our in-line instruments for measuring critical liquid parameters, such as pH and oxygen levels and water conductivity and resistivity, enable pharmaceutical, biotech and other process companies to continuously ensure product quality and meet regulatory standards.

Product Inspection



Integrated packaging lines in food, beverage and pharmaceutical companies use our instruments for dynamic quality and quantity control. We ensure the quality of contents through metal detection and X-ray visioning, and we ensure the integrity of packages through checkweighing and automated combination weighers.

Industrial Instruments



Our instruments and software combine to meet manufacturing production and quality control needs. We offer weighing sensors, scale terminals and software to control automated manufacturing, and versatile instruments that dispense and formulate, fill and batch, weigh and count. For express carriers, in-motion weighing, dimensioning and identification solutions speed throughput and increase revenue.

Retail Solutions



From food retailers' receiving docks to their checkout counters, we enhance efficient handling of fresh goods with weighing, packaging, pricing, wrapping and labeling solutions. Our software solutions enable retailers to optimally manage both fresh and nonperishable goods. Moreover, our Internet-enabled scale allows retailers to remotely manage prices, inventory, promotions and more.

We Focus On our Customers' Success

METTLER TOLEDO Service is your first choice when it comes to professionally performed services.

ServiceXXL provides cost-effective service solutions to ensure optimized equipment uptime, traceability of results and regulatory compliance.

ServiceXXL Solution

Pre-sales
and after-sales
Services

- Expert validation support
- Manufacturer developed Validation Protocols
- Software Update & Maintenance Agreements

Validation

- Industry-specific Equipment Qualification Packages
- Equipment re-qualification
- Factory-trained and authorized technicians

Qualification

- Calibration Report ISO 17025
- Calibration Certificate ISO 9000
- Measurement Uncertainty to USP Certificate

Calibration

- Service Agreements
- Installation & Repair
- Customer Training & Seminars
- Application & Technical Support
- Service Center

Maintenance and Support

Customer Value

Process consistency to ensure product quality

- Optimized processes result in reduced utility costs
- Increased employee awareness of processes, and the necessity for adherence to procedures
- Reduced process monitoring, sampling and testing costs



Validation

Compliance to satisfy industry-specific requirements

- IPacs and EQ-Pacs ensure compliance with standards applicable to major industries
- Eliminated or reduced risk of non-compliance during FDA and other quality audits
- Improved operation efficiency through quick installation, start-up and user training



Qualification

Accuracy – the foundation of your success

- Manufacturer specified calibration processes ensure accurate, reliable and traceable results
- Less waste in research, development and manufacturing reduces costs and increases profitability
- Optimized operation limits through quantitative understanding of measurement uncertainty



Calibration

Preventive maintenance to protect your investment

- Cost control through regular scheduled Proactive Maintenance
- Extended equipment life span, reduced down-time and expanded production capacity
- Productive and safe working processes through user training



Maintenance & Support

Service Agreements

Affordable – Convenient – Smart

Choose one of our tailored service packages, which cover the entire range from basic needs to “no-risk” options.

Your Benefits:

- Be in control of your costs
- Minimize downtime and unexpected expenses
- Factory-trained technician to perform repairs and maintenance

Package “Standard”

This “no-risk, no surprise” package is the perfect solution for all of your equipment. The plan offers the security of fixed-price service support, covering labor, travel and parts, and a quick response time.

Package “Light”

This package is a pro-active preventive maintenance plan with focus on maintaining factory specifications, and expanding the life cycle of your equipment.

Package “Calibration”

This basic package is the most cost-effective, economical choice, ensuring accuracy and reliability of your results.

Content of service packages*:

Included with Service Agreement	Standard	Light	Calibration
External cleaning of balance	•	•	
Internal cleaning of balance	•	•	
Adjustments to manufacturers specifications	•	•	•
Tests performed with certified weights or substances	•	•	•
Calibration sticker	•	•	•
If repair is needed			
Priority response time	•	•	•
Unlimited repair calls for electronic failures	•		
All travel and labor charges for repair call	•		
Replacement of OEM parts	•		
On request at additional charge			
Calibration Certificate	◦	◦	◦
Completion of Customer Documentation	◦	◦	◦

* Naming and contents may vary from country to country

• included ◦ optional

Are you Overpaying for the Service you Receive?

Many customers only focus on initial costs when selecting a provider to meet their service needs. METTLER TOLEDO encourages you to calculate Total Cost of Ownership – you don’t need to settle for anything less than the best.

- Have you ever calculated what a break down or incompliance may cost you in the long run?
- What are the potential hassles when parts are unavailable?
- Why should you pay more than list price for parts?
- What if a technician is not manufacturer-trained?

Make a smart decision and rely on ServiceXXL and the full range of services to support your business strategy.



Professional Documentation

Ensure Compliance and Process Consistency

METTLER TOLEDO offers various types of documentation for calibration, IPacs for Initial Qualification, and EQ-Pacs to cover the entire range of Equipment Qualification. Whether you have to satisfy ISO 9000/17025 requirements or follow GLP/GMP or HACCP guidelines, you will find the document that matches your needs. Consult the list below for more detailed information.

Your Benefits:

- Avoid waste and save money through properly calibrated and maintained equipment
- Be in compliance with your industry-specific norms and regulations
- Meet specified technical limits and avoid equipment shut-down and productivity loss

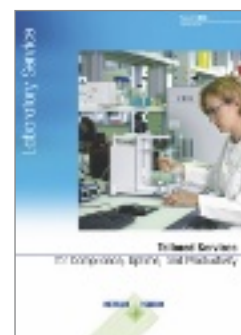
What Type of Documentation do you Need?

Customer Accreditation/Registration	ISO9001 Registered Calibration Certificates	ISO17025 Accredited Reports	MT MinWeigh Meas. Uncert. USP	EQ-Pacs for Balances and Instruments	IPac for Balances	IPac for Moisture Analyzers
ISO9001	required	recommended	recommended		Quality-Pac	recommended
ISO17025		required			Quality-Pac	recommended
QS9000		required			Quality-Pac	recommended
GLP/GCP/GMP/HACCP	required		required	required	Pharma-Pac	recommended
FDA Regulated Industry	required		required	required	Pharma-Pac	recommended
ANSI/NCSL7540		required			Quality-Pac	recommended
MIL-STD 45662A		required			Quality-Pac	
10 CFR40		required			Quality-Pac	
10 CFR21		required			Quality-Pac	
NELAC		recommended			Quality-Pac	recommended
No QM System	recommended				Starter-Pac	

ISO17025 Accreditation

ISO17025 is rapidly achieving prominence where a technically-focused standard is necessary. With ever increasing demands from a global marketplace, mutual recognition to a globally harmonized standard means that your service provider is experienced with and in complete compliance to the ISO17025 requirements. METTLER TOLEDO has adapted its service operations to the rigor of ISO17025 accreditation so that today, our customers can benefit from our professional and consistent approach to service. To speed up the accreditation process and save on costs, some service providers are looking out for cheap alternatives and often end up with accrediting bodies which are not part of the mutual recognition agreement.

Visit the following websites to ensure your service provider has been accredited by an organization which is part of the Cooperating Laboratory.



www.mt.com/serviceexl

For more information

Accreditation Websites:

United States

American Association for Laboratory Accreditation (A2LA)

► www.a2la.org

Europe

European Cooperation for Accreditation (EA)

► www.european-accreditation.org

Asia

Asia Pacific Laboratory Accreditation Cooperation (APLAC)

► www.aplac.org

International

International Laboratory Accreditation Cooperation (ILAC)

► www.ilac.org

Calibration Certificates

Make Sure you get What you Were Promised.

When using a measuring instrument in any process, you need to be confident that your documented results are accurate, precise and valid. Calibration improves your measurement accuracy and ensures that your balance or analytical instrument meets its required specifications. Calibration also leads to increased production yields and overall measurement consistency.

Beside the technical benefits and in order to comply with the regulations and Quality Management systems there are some important issues to consider. A valuable and compliant calibration certificate offers the following important features.

- The issuing organization is ISO17025 accredited
- Full traceability with unique certificate number and technician name
- Measurement methods to be stated and followed
- All measurements with uncertainty statement
- All relevant ambient parameters stated

Pre-sales
and after-sales
Services

DEUTSCHER KALIBRIERDIENST DKD Seite 1/3
Kalibrierlabor für nichtelektronische elektronische Waagen
Calibration laboratory for electronic nonautomatic weighing instruments
Akreditiert durch die 1. akkreditiert by the
Akkreditierungsstelle des DKD bei der
PHYSIKALISCH-TECHNISCHEN BUNDESANSTALT (PTB)

ENAC CERTIFICADO DE CALIBRACIÓN
Conformity Institute
Nº 112555557
Número de certificado
Página 1 de 1

Mettler-Toledo S.A.E.
Laboratorio de Calibración
Calle Ucostrada
Avda. San Pablo, 28
28520 Sevilla (Spain)
Tel. 952 12 00 23
METS 648 23 13

METTLER TOLEDO

Instrumento de pesaje
Modelo: 200 g
Unidad: 0,0001 g

WURCA
Mettler Toledo

ACCE_D
Modelo: XPR01
Nº de serie: 112555557

IDENTIFICACIÓN
Medición: 112555557

SOLE TIGHT
Aplicación: AM Plasma
Brazo de brazo: 2000
Modelo: 2000

Fecha de calibración: 14 - Septiembre - 2007

Signature: Autorizado: F. Aguirre Barrio
Director Técnico
Firma: Thomas Rigo
Técnico de calibración
Fecha de emisión: 14 - Septiembre - 2007

Information on accreditation
All METTLER TOLEDO service
organisations are accredited
by e.g. DKD, A2CA...

Unique and traceable num-
bering system for distinct
identification.

Identification of technician
who performed the test

Equipment Qualification

IQ/OQ/PQ for Balances and Analytical Instruments

Pharmaceutical, biotechnology and food and beverage companies must meet an increasing number of equipment qualification requirements. METTLER TOLEDO has designed IPacs and EQ-Pacs to satisfy qualification demands of the FDA for our instruments in use in R&D and quality control.

Your Benefits:

- Achieve and maintain the qualified state and avoid FDA fines
- Profit from METTLER TOLEDO's experience and save time and money
- Shorten the start up process and improve your productivity

DQ (Design Qualification)	EQ-Pac	Starter-Pac	Quality-Pac	Pharma-Pac	Moisture-Pac
Support of design and vendor qualification	●				
IQ (Installation Qualification)					
Perform and document equipment installation	●	●	●	●	●
Balance configuration and filter setting	●	●	●	●	●
OQ (Operational Qualification)					
Initial Calibration according manufacturer specification	●	●	●	●	●
Equipment familiarization of users	●	●	●	●	●
Calibration documented in certificate	●		●	●	●
PQ (Performance Qualification)					
Support user in setting up SOP	●		●	●	●
Log authorized users	●		●	●	●
MQ (Maintenance Qualification)					
Consulting regarding Re-qualification	●				
Consulting regarding periodic maintenance	●				
Consulting regarding purchase of weights	●				

● Included

EQ-Pacs cover the full range of Equipment Qualification (EQ), and are mainly used in the Pharmaceutical, Biotechnology and Food industries. EQ-Pacs are perfect for customers who prefer that the entire qualification process is documented in a format designed and provided by the manufacturer. These customers understand that outsourcing the entire qualification process results in cost savings, regulatory compliance and peace of mind.



Customers who already have a qualification process in place often require the manufacturer to take responsibility for a qualified equipment installation. With the **IPac**, a METTLER TOLEDO authorized service technician performs Installation Qualification (IQ), and Operational Qualification (OQ). Once these steps are completed, the customer takes over responsibility for all further qualification steps by integrating the equipment into the existing qualification process.



A History of Innovation

As a world-leading manufacturer of laboratory balances, our goal is to make weighing as simple as possible. The result is an array of solutions designed to help save you time and money as well as provide improved weighing accuracy and reliability.

Since 1945, METTLER TOLEDO has been at the forefront of product innovation. Here are some of the pioneering advances we have brought to the world of balances in the last 60 years.



1945

Dr. Erhard Mettler unveils the first analytical balance based on the substitution principle.



1952

The first microbalance with 0.000001 g readability.



1973

The PT, the first electronic precision balance.



1986

The legendary PM is launched.



1992

The UMT5, the first electronic microbalance with 51 million points resolution.



1993

With the introduction of the revolutionary MonoBloc weighing cell, METTLER TOLEDO set another milestone. More compact, robust and durable than its predecessors, it has become the reliable and precise "heart" of many of our balances.



1996

The HR73, the first moisture analyzer with halogen technology.



2000

The AX analytical balance: a technical breakthrough with internet connection, touchscreen operation and automatic door opening with IR-sensors.



2003

The XS, the first balance with grid weighing pan. Sets new standards for speed, ergonomics and efficiency.



2004

Innovative firsts like color touch-screen display, QM-Toolbox and Bluetooth wireless data transfer make the XP the leading precision balance in the market.

The Right Balance for Your Needs

Choose Between two Levels



With customers in a multitude of industries and environments, including pharmaceuticals, food, cosmetics, chemicals, research and production, our balances fulfil a diversity of needs. That is why we offer two balance levels – **Excellence** and **Classic**.

Customer needs	METTLER TOLEDO solutions	Customer benefits
<ul style="list-style-type: none"> • Efficiency in daily weighing • User-friendliness is key • Accurate weighing of smallest sample sizes • Balance for use in regulated areas (e.g. FDA, GxP, USP) • Safe handling of toxic substances • Weighing in difficult environments (e. g. fume hoods, static charges, clean rooms) • Connectivity is key • Comprehensive data management solutions 	<h3>Excellence Level</h3> <p>For customized weighing solutions</p> <ul style="list-style-type: none"> • Peak measurement performance • Built-in tools for quality management (e.g. MinWeigh) • Touchscreen user interface • Individual profiles and access rights for 8 users • Password protection • GxP-compliant documentation • Touchless operation • ErgoClips for secure sample handling • Integrable anti-static kit • 7 interface options (incl. wireless Bluetooth and Ethernet) • LabX software for data management acc. to 21 CFR part 11 • Dedicated pipette calibration solutions for professional use including software support by Calibry 	<p>EXCELLENCE products offer all benefits of CLASSIC products, plus:</p> <p>Maximum yield from valuable substances</p> <ul style="list-style-type: none"> • Minimum weight (according to USP) as low as 0.6 mg <p>Regulatory compliance</p> <ul style="list-style-type: none"> • 100% data security • Seamless documentation • Full traceability of results <p>Highest productivity</p> <ul style="list-style-type: none"> • High-speed weighing technology • User-friendly operation • Increased process security <p>Increased user safety</p> <ul style="list-style-type: none"> • Touchless operation • Secure sample placement
	<h3>Classic Level</h3> <p>For simple weighing tasks</p> <ul style="list-style-type: none"> • Good measurement performance • Push-button operation • Rugged design 	<ul style="list-style-type: none"> • Accurate • Easy to use • Reliable



2005
Security knows no alternative: the XP analytical balance offers unique solutions for unprec-edented data and sample security as well as improved user safety.



2006
Thanks to its world-leading measure-ment performance (52g x 1µg) the XP56 microbalance allows accurate weighing of smallest sample quantities – for maximum sample yield and cost savings.



2007
Rapid, ergonomic and compliant: Inno-vative pipette calibration solutions for multi- and single channel pipettes signifi-cantly increasing efficiency of your pipette calibration process – professional data management and accuracy guaranteed.

100% Certainty For Small Samples

With over 20 million resolution points, **UMX/MX** microbalances are ideal for measuring small samples very accurately.

Complete Freedom of Movement

Direct access thanks to all-round opening of the motor-driven draft shield. It can be operated simply – hands free, at a keystroke or manually.

Highest Resolution

With their extremely high resolution and reproducibility, **UMX** and **MX** microbalances weigh even smallest samples according to internationally applicable regulations for maximum yield from expensive substances.



Microbalances
UMX/MX Line

Select the Right Micro- or Analytical Balance

Excellence Plus

Maximum sample yield

UMX, MX and XP microbalances

With up to 52 million resolution points, even smallest sample quantities can be measured 100% accurately.

Regulatory compliance

XP Line

Innovative solutions increase user safety and guarantee unprecedented data and sample security.

Excellence

Top efficiency for daily routine

XS Line

SmartGrid, the revolutionary grid weighing pan, reduces weighing times substantially – for maximum productivity in daily weighing.

Classic

Reliable and robust for simple weighing

AB-S Line

The rugged metal housing with built-in overload protection guarantees a long service life at a cost effective-price.



The touchscreen display makes operation clear and easy.

UMX/MX microbalances



Touchscreen display
Makes operation easy and fast



MinWeigh
Warns if the minimum weight requirement is violated



proFACT
Fully automatic time- and temperature-controlled internal adjustment and linearisation



SmartSens
Infrared-sensors for hands-free operation



8 users
Individual settings, password-protected



Applications
Comprehensive range of built-in applications



Connectivity
RS232 built-in, second interface as option



LabX PC Software
For electronic data management (see page 60/61)

All models can/offer:

- Download software from the internet
- Determine density of solids and liquids
- Tare over the entire weighing range
- Display various weighing units
- Use alphanumeric identifications
- Perform differential weighings
- Validate pipettes
- Produce statistical evaluations
- Factorize
- Piece count, percent weigh
- Protect methods with password
- Communicate in 7 languages (e, d, f, i, sp, russ, jap)
- Easy connection to LabX PC software

www.mt.com/micro



For more information

ServiceXXL
Tailored Services

Recommended:
Professional service contract.
See pages 6–11

Model	Maximum capacity	Readability	Repeatability	Linearity	Settling time	Minimum Weight ¹⁾	Weighing pan Ø (mm)	Part No.
UMX2	2.1 g	0.1 µg	0.25 µg	1 µg	10 s	0.6 mg	16	11115545
MX5	5.1 g	1 µg	0.8 µg	4 µg	8 s	1.5 mg	27	11115515

¹⁾ Typical minimum weight according to US Pharmacopeia (USP)

All models also available in verified version.

Don't forget accessories

For the complete range see
pages 50–71

Maximum Sample Yield And Cost Savings

World-leading in performance, XP microbalances are the top choice for weighing small amounts of precious substances.

- Measurement performance: 52g x 1 µg
- Typical minimum sample weight according to USP: 2.1 mg
- Direct-dosing of small samples into large tare containers

Microbalances
Excellence Plus – XP Line

Regulatory Compliance



MinWeigh

Warns you with red figures when your sample weight is below the defined minimum value.



LevelControl

The XP alerts you when it is not correctly leveled and proposes corrective action in the display – for always secure results.



Direct-Dosing

XP microbalances enable you to dose smallest sample quantities directly into the tare container to avoid sample transfer errors. The result: maximum measurement certainty and reduced contamination risk.

Secure Sample Handling



SmartGrid micro, the revolutionary grid weighing pan, minimizes the effects of air turbulence in the weighing chamber – for extremely fast results.



ErgoClip Basket micro and ErgoClip Flask micro

For secure positioning of various test tubes and volumetric flasks. The ErgoClips can be turned to any angle on either side making it easier to dose directly into narrow container openings.



The MinWeigh Door micro allows dosing through a small window directly into the final vessel, without any draftshield movement. Less turbulence in the weighing chamber enables stable results in no time.

XP microbalances



SmartScreen color display

Touchscreen allows comfortable and error-free operation



SmartGrid and ErgoClips

For fastest results and secure sample handling



SmartSens and ErgoSens

For hands-free operation



QM Toolbox

For maximum security in regulated environments



MinWeigh

Warns if the minimum weight requirement is violated



LevelControl

Warns when the balance is not leveled



8 users

Individual settings, user management with password protection



GxP – compliant documentation

Seamless documentation, full traceability



proFACT

Fully automatic time- and temperature-controlled internal adjustment and linearisation



DeltaTrac color

Graphically displays the remaining available capacity



Connectivity

RS232 built-in, slot for second interface (7 options, incl. wireless Bluetooth)

Bluetooth



Applications

Comprehensive range of built-in applications



LabX PC Software

For electronic data management (see pages 60/61)

www.mt.com/micro

For more information



All models can offer:

- Built-in QM Tools (MinWeigh, LevelControl, user management with password protection, BalanceCheck, ChangeHistory etc.)
- Protect applications with password
- Alphanumeric sample identification, 4 IDs per sample
- Sensors for hands-free operation
- Download software from the internet
- Display various weighing units
- Factorize
- Piece counting, formulation, % weighing, statistics, density determination, differential weighing
- Height-adjustable inner draft shield
- Motorized outer and inner draft shield doors
- Removable terminal
- Be adapted to the environment and weighing process
- Built-in RS232 interface, slot for second interface (7 options)
- Communicate in 7 languages (e, d, f, i, sp, russ, jap)
- Easy connection to LabX PC software

ServiceXXL

Tailored Services

Recommended: Professional service contract. See pages 6–11

Model	Maximum capacity	Readability	Repeatability	Linearity	Settling time	Minimum Weight ¹⁾	Weighing pan (mm)	Part No.
XP26	22g	1 µg	1.5 µg	6 µg	3 s	2.1 mg	40x40	11106048
XP26 DeltaRange	← 5.1g → 22g	2 µg/0.01 mg	2 µg/5 µg	10 µg	3.5 s	3.6 mg	40x40	11106051
XP56	52g	1 µg	1.5 µg	20 µg	3 s	2.1 mg	40x40	11106054
XP56 DeltaRange	← 11g → 52g	2 µg/0.01 mg	2 µg/6 µg	30 µg	3.5 s	3.6 mg	40x40	11106057

¹⁾ Typical minimum weight according to US Pharmacopeia (USP)

All models also available in verified version.

Don't forget accessories

For the complete range see pages 50–71

Comprehensive Security Has no Alternative

Innovative solutions increase user safety and guarantee unprecedented sample and data security.

Analytical balances
Excellence Plus – XP Line



Increased User Safety

Thanks to **SmartSens** you can weigh without touching the balance. With complete focus on the sample, valuable or toxic substances are weighed in safely and without spillage.



LevelControl

The XP alerts you when it is not correctly leveled and proposes corrective action in the display – for always secure results.



Regulatory Compliance



User management

When data security is key: the user management allows individual profiles and access rights for up to 8 users, in 7 languages.

Minimum weight

MinWeigh warns you with red-colored figures when your sample weight is below the defined minimum value. This ensures precious substances are not wasted.

Fast and Secure Sample Handling



SmartGrid, the revolutionary grid weighing pan, minimizes the effects of air turbulence in the weighing chamber – for extremely fast results. Spilt substances fall on to the tray underneath and no longer distort the weighing result.



ErgoClips

The holders for volumetric and round-bottom flasks, glass and plastic test tubes as well as disposable weighing pans, allow secure placement of all types of tare containers.



One-step dispensing directly into the tare container greatly accelerates the weighing process. Distortion of the weight value due to statically charged tare containers is prevented by the faraday shield effect of the grid basket.

XP analytical balances



SmartScreen color display

Touchscreen allows comfortable and error-free operation



SmartGrid and ErgoClips

For fastest results and secure sample handling



SmartSens and ErgoSens

For hands-free operation



QM Toolbox

For maximum security in regulated environments



MinWeigh

Warns if the minimum weight requirement is violated



LevelControl

Warns when the balance is not leveled



8 users

Individual settings, user management with password protection



GxP – compliant documentation

Seamless documentation, full traceability



proFACT

Fully automatic time- and temperature-controlled internal adjustment and linearisation



DeltaTrac color

Graphically displays the remaining available capacity



Connectivity

RS232 built-in, slot for second interface (7 options, incl. wireless Bluetooth)

Bluetooth



Applications

Comprehensive range of built-in applications



LabX PC Software

For electronic data management (see pages 60/61)

www.mt.com/xp-analytical

For more information



All models can offer:

- Built-in QM Tools (MinWeigh, LevelControl, user management with password protection, BalanceCheck, ChangeHistory etc.)
- Protect applications with password
- Alphanumeric sample identification, 4 IDs per sample
- Sensors for hands-free operation
- Download software from the internet
- Display various weighing units
- Factorize
- Piece counting, formulation, % weighing, statistics, density determination, differential weighing
- Height-adjustable inner draft shield
- Motorized draft shield doors
- Removable terminal
- Be adapted to the environment and weighing process
- Built-in RS232 interface, slot for second interface (7 options)
- Communicate in 7 languages (e, d, f, i, sp, russ, jap)
- Easy connection to LabX PC software

ServiceXXL
Tailored Services

Recommended:
Professional
service contract.
See pages 6–11

Model	Maximum capacity	Readability	Repeatability	Linearity	Settling time	Minimum weight ¹⁾	Weighing pan (mm)	Part No.
XP105 DeltaRange	← 31 g → 120 g	0.01/0.1 mg	0.015/0.05 mg	0.15 mg	2.5 s/1.5 s	21 mg	78x73	11106036
XP205	220 g	0.01 mg	0.015 mg	0.1 mg	2.5 s	21 mg	78x73	11106024
XP205 DeltaRange	← 81 g → 220 g	0.01/0.1 mg	0.015/0.05 mg	0.15 mg	2.5 s/1.5 s	21 mg	78x73	11106027
XP204	220 g	0.1 mg	0.05 mg	0.2 mg	1.5 s	120 mg	78x73	11106030
XP504	520 g	0.1 mg	0.1 mg	0.4 mg	1.5 s	120 mg	78x73	11106042
XP504 DeltaRange	← 101 g → 520 g	0.1/1 mg	0.1/0.5 mg	0.5 mg	1.5 s/1.5 s	120 mg	78x73	11106045

¹⁾ Typical minimum weight according to US Pharmacopeia (USP)

All models also available in verified version.

Don't forget accessories

For the complete range see
pages 50–71

Utmost Efficiency

Featuring the revolutionary grid weighing pan, XS analytical balances set new standards regarding speed and ergonomics.

Analytical balances
Excellence – XS Line



High-Speed Weighing

SmartGrid, the revolutionary grid weighing pan, minimizes the effects of air turbulence in the weighing chamber. Stabilization times are reduced significantly.



ErgoClips, innovative accessories for securely positioning various kinds of weighing containers on the SmartGrid, improve sample handling and help eliminate the influence of electro-static charges.





Easy Cleaning

Because the grid weighing pan is fastened at the back, spilt substances simply fall into the tray underneath and do not distort the weighing result. Both parts can be removed – for easy cleaning.



User-Friendly Operation Thanks to Touchscreen Display



XS analytical balances



Touchscreen display

Makes operation easy and fast



SmartGrid and ErgoClips

For fastest results and secure sample handling



Left/right operation

The right door can be opened from the left side and vice versa



GxP – compliant documentation

Seamless documentation, fully traceable



FACT

Fully automatic internal adjustment



DeltaTrac

Graphically displays the remaining available capacity



Bluetooth

Connectivity

RS232 built-in, slot for second interface (7 options, incl. wireless Bluetooth)



Standard applications built-in



LabX PC Software

For electronic data management (see pages 60/61)

ServiceXXL®
Tailored Services

Recommended:

Professional service contract.

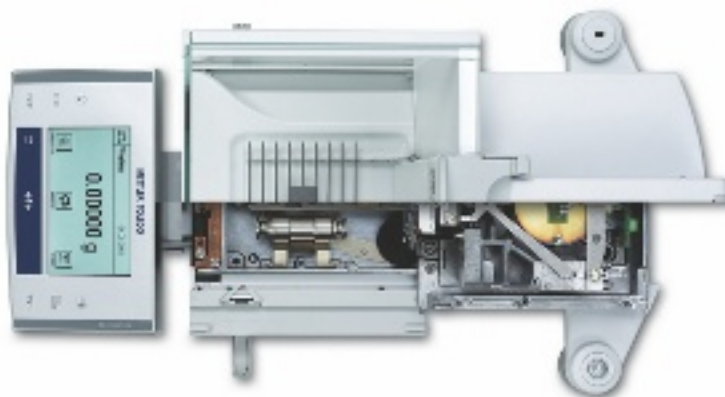
See pages 6–11

www.mt.com/xs-analytical

For more information

All models can offer:

- Download software from the Internet
- Display various weighing units
- Factorize
- Use alphanumeric identifications
- Determine the densities of solid, liquid and pasty substances
- Formulation and totalization
- Display statistics with \pm , %
- Calculate coefficients
- Protect settings with password
- Communicate in 7 languages (e, d, f, i, sp, russ, jap)
- Easy connection to LabX PC software



Model	Maximum capacity	Readability	Repeatability	Linearity	Settling time	Minimum weight ¹⁾	Weighing pan (mm)	Part No.
XS105 DualRange	41 g 120 g	0.01/0.1 mg	0.02/0.05 mg	0.2 mg	3 s/1.5 s	30 mg	78x73	11106009
XS205 DualRange	81 g 220 g	0.01/0.1 mg	0.02/0.05 mg	0.2 mg	3 s/1.5 s	30 mg	78x73	11106000
XS64	61 g	0.1 mg	0.07 mg	0.2 mg	1.5 s	120 mg	78x73	11106015
XS104	120 g	0.1 mg	0.07 mg	0.2 mg	1.5 s	120 mg	78x73	11106012
XS204 DeltaRange	81 g 220 g	0.1/1 mg	0.1/0.5 mg	0.5 mg	1.5 s/1.5 s	120 mg	78x73	11106006
XS204	220 g	0.1 mg	0.07 mg	0.2 mg	1.5 s	120 mg	78x73	11106003

¹⁾ Typical minimum weight according to US Pharmacopoeia (USP)

All models also available in verified version.

Don't forget accessories

For the complete range see
pages 50–71

Simply Weigh

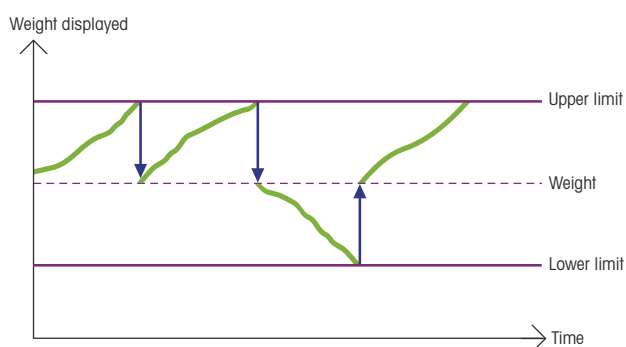
Simply Accurate

Thanks to a built-in adjustment weight, precise and reliable results are guaranteed. The balance adjusts itself automatically with **FACT**. Time-consuming checks with external weights can be avoided.

Analytical balances
Classic Plus



FACT



Temperature changes influence the accuracy of the weighing result. FACT adjusts the balance automatically any time the sensor detects a value above or below the permissible tolerance limits.

Simply Easy



The large sensor keys and the bright backlit display make the AB-S easy to use.

Low-Budget Weighing

Classic Light

AL analytical balances

- Single-key operation
- External adjustment weight
- Rugged construction
- RS 232 interface



Classic Plus analytical balances



For fast and reliable weighing results
(all 0.1 mg models except AB204-S)

FACT

Fully automatic internal adjustment
(Classic Plus models only)



Brilliant backlit display except models
AB265-S/FACT, AB135-S/FACT, AB265-S
and AB135-S)

METAL

High-grade chemical-resistant
diecast aluminum housing

RS
232

Built in as standard, for connection
to PC or printer



Glass draft shield with sliding doors. Free
access from right, left and above

A

Built-in applications

All models can/offer:

- Piece counting, % weighing, dynamic weighing
- Be adapted to the weighing process
- Display various weighing units
- Free Factor for multiplying and dividing calculations (Classic Plus models only)

www.mt.com/classic



For more information

Don't forget accessories

For the complete range see
pages 50–71

ServiceXXL
Tailored Services

Recommended:
Professional
service contract.
See pages 6–11

Classic Plus	Maximum capacity	Readability	Repeatability	Linearity	Weighing pan Ø (mm)	Part No.
AB135-S/FACT Dual Range	31 g 120 g	0.01 mg/0.1 mg	0.03 mg/0.1 mg	0.2 mg	80	11139502
AB265-S/FACT Dual Range	61 g 220 g	0.01 mg/0.1 mg	0.03 mg/0.1 mg	0.2 mg	80	11139506
AB54-S/FACT	51 g	0.1 mg	0.1 mg	0.2 mg	80	11139574
AB104-S/FACT	110 g	0.1 mg	0.1 mg	0.2 mg	80	11139578
AB204-S/FACT	220 g	0.1 mg	0.1 mg	0.2 mg	80	11139582
AB304-S/FACT	320 g	0.1 mg	0.1 mg	0.4 mg	80	11139586
All models offer fully automatic internal adjustment (FACT) and are also available in verified version.						
Classic						
AB265-S Dual Range	61 g 220 g	0.01 mg/0.1 mg	0.03 mg/0.1 mg	0.2 mg	80	11135010
AB54-S	51 g	0.1 mg	0.1 mg	0.2 mg	80	11103003
AB104-S	110 g	0.1 mg	0.1 mg	0.2 mg	80	11103000
AB204-S	220 g	0.1 mg	0.1 mg	0.2 mg	80	11103001
AB304-S	320 g	0.1 mg	0.1 mg	0.4 mg	80	11103092

All models offer internal adjustment at a keystroke (Cal Int) and are available in verified version.

Secure Results in Regulated Environments

A leading-edge user interface combined with peak weighing performance boosts productivity in regulated environments.

Precision balances
Excellence Plus – XP Line



Color-Coded User Profiles

In the user's language give him the certainty of working with "his" balance – and always with the correct settings.



Select the Right Precision Balance

Excellence Plus

Regulatory compliance, high productivity and amazing solutions

XP Line

Innovative QM-Tools and a color touchscreen display for secure and documented results compliant with regulations. Peak weighing performance and hands-free operation boost productivity. A wide range of clever accessories enables tailored solutions.

Excellence

Top efficiency for daily routine

XS Line

High speed, robust construction and ease of use for unmatched performance in high-throughput environments.

Classic

Reliable and rugged for simple weighing

PB/SB Line

The rugged metal housing with built-in overload protection guarantees a long service life at a very attractive price.



Bluetooth

Enables wireless connection between balance and printer up to a distance of 10 m. Place the printer wherever you want it, with no cables to worry about.



ErgoSens

Infrared sensor for hands-free operation of the XP. Freely placeable, with individual configuration for up to eight users.

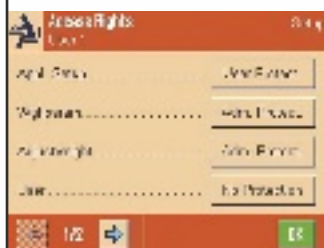
Regulatory Compliance

----- Weighing -----	
20 Jan 2007 13:03	
Quality Control	
Laboratory A-786	
Balance Type XP602S-A	
Balance ID GC Balance 3	
User Name Julie Evans	

Balance is levelled	
Substance	Tramadol
Lot	C-79634
Batch	5632784
G	630.83 g
T	264.83 g
N	365.17 g

Signature	
<i>Julie Evans</i>	

Gapless documentation
With the XP, GxP-compliant reports can be configured to perfectly match your needs.



User management

Individual settings and access rights for up to eight users. Management of users with administrator profile.



Password protection

Ensure security with alphanumeric password protection. The settings of each user can be protected from unwanted changes.



LevelControl

Whenever your balance is not levelled, the XP sends out a warning signal and proposes corrective action in the display.

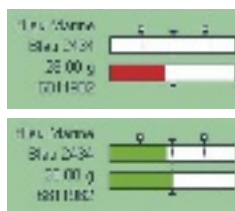
High Productivity

**Faster, more precise results
with MonoBloc^{HighSpeed} technology and
MinWeigh for 100% process security.**



Precision balances
Excellence Plus – XP Line

Weighing-in aid
Fast and safe
weighing-in with
clear guidance in red
and green.



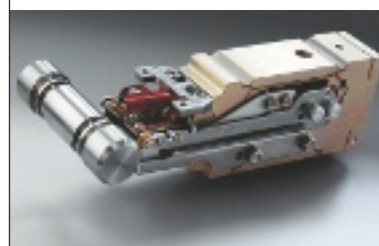
MinWeigh
Warns if the sample weight is below
the allowed minimum. Ensures 100%
process security.



Touchscreen display
Makes operating the XP clear,
fast and very comfortable.

Outstanding Measurement Performance

A separate processor brings the
MonoBloc^{HighSpeed} weighing cell up
to maximum speed, and thanks to
overload protection even heavy loads
cannot damage the XP.





XP precision balances

SmartScreen Color Display. Touchscreen allows easy operation and guides the user with colours



SmartSens and ErgoSens
For hands-free operation



QM Toolbox
Maximum security in regulated environments



MinWeigh
Warns if the minimum weight requirement is violated



LevelControl
Warns when the balance is not leveled



8 users
Individual settings, password-protected



GxP – compliant documentation
Seamless documentation, full traceability



proFACT
Fully automatic time- and temperature-controlled internal adjustment



MonoBloc^{HighSpeed} technology
For peak weighing performance



Reliability
Built of solid metal, resistant to chemicals.



IP54 inUse
Protection against dust and water



Bluetooth

Connectivity
RS232 built-in, slot for second interface
(7 options, incl. wireless Bluetooth and Ethernet)



DeltaTrac color
Graphically visualizes the remaining available capacity



Applications
Comprehensive range of built-in applications



LabX PC software
For electronic data management
(see pages 60/61)

FreeWeigh.Net

FreeWeigh software
Connectivity to FreeWeigh. Net for optimal process control

All models can offer:

- Built-in QM Tools (MinWeigh, LevelControl, user management with password protection, BalanceCheck, ChangeHistory etc.)
- Protect applications with password
- Alphanumeric sample identification, 4 IDs per sample
- Sensors allowing hands-free operation
- Download software from the internet
- Display various weighing units
- Factorize
- Piece counting, formulation, % and dynamic weighing, statistics, differential weighing and density determination
- Be adapted to the environment and weighing process
- Large, chemical-resistant stainless steel weighing pans
- Overload protection
- Removable terminal
- Communicate in 7 languages (e, d, f, i, sp, russ, jap)
- Easy connection to LabX PC software



www.mt.com/xp-precision

For more information

Don't forget accessories

For the complete range see
pages 50–71

ServiceXXL

Tailored Services

Recommended:
Professional
service contract.
See pages 6–11

Model	Maximum capacity	Readability	Repeatability	Linearity	Weighing pan	Part No.
XP204S	210 g	0.1 mg	0.2 mg	0.2 mg	Ø90 mm	11130052
XP404S	410 g	0.1 mg	0.1 mg	0.2 mg	Ø90 mm	11130076
XP404S DeltaRange	← 80 g → 410 g	0.1 mg/1 mg	0.1 mg/0.6 mg	0.6 mg	Ø90 mm	11130082
XP203S	210 g	1 mg	0.9 mg	2 mg	127 x 127 mm	11130022
XP603S	610 g	1 mg	0.9 mg	2 mg	127 x 127 mm	11130020
XP603S DeltaRange	← 120 g → 610 g	1 mg/10 mg	1 mg/6 mg	10 mg	127 x 127 mm	11130040
XP1203S	1210 g	1 mg	0.8 mg	2 mg	127 x 127 mm	11130000
XP2003S DeltaRange	← 500 g → 2100 g	1 mg/10 mg	1 mg/6 mg	6 mg	127 x 127 mm	11130088
XP5003S DeltaRange	← 1000 g → 5100 g	1 mg/10 mg	1 mg/6 mg	6 mg	127 x 127 mm	11130094
XP802S	810 g	10 mg	8 mg	20 mg	170 x 205 mm	11130061
XP1202S	1210 g	10 mg	8 mg	20 mg	170 x 205 mm	11130070
XP2002S	2100 g	10 mg	8 mg	20 mg	170 x 205 mm	11130060
XP4002S	4100 g	10 mg	8 mg	20 mg	170 x 205 mm	11130102
XP4002S DeltaRange	← 800 g → 4100 g	10 mg/0.1 g	8 mg/60 mg	20 mg	170 x 205 mm	11130039
XP6002S	6100 g	10 mg	8 mg	20 mg	170 x 205 mm	11130100
XP6002S DeltaRange	← 1200 g → 6100 g	10 mg/0.1 g	8 mg/60 mg	100 mg	170 x 205 mm	11130101
XP8002S	8100 g	10 mg	8 mg	20 mg	170 x 205 mm	11130201
XP10002S	10100 g	10 mg	8 mg	20 mg	170 x 205 mm	11130200
XP10002S DeltaRange	← 2000 g → 10100 g	10 mg/0.1 g	8 mg/60 mg	50 mg	170 x 205 mm	11130206
XP2001S	2100 g	0.1 g	80 mg	60 mg	190 x 223 mm	11130152
XP4001S	4100 g	0.1 g	80 mg	60 mg	190 x 223 mm	11130141
XP6001S	6100 g	0.1 g	80 mg	60 mg	190 x 223 mm	11130140
XP8001S	8100 g	0.1 g	80 mg	100 mg	190 x 223 mm	11130221
XP10001S	10100 g	0.1 g	80 mg	100 mg	190 x 223 mm	11130220

All models also available in verified version. For M and L platforms see page 29.

Amazing Solutions with Clever Accessories



Precision balances
Excellence Plus – XP Line

The XP family: S/M/L platforms for precise weighing from 0.1 mg up to 64 kg.



System integration

The weighing platform of the XP precision balance is also available separately. Compact, robust and with outstanding weighing performance, it is ideal for system integration.



Data acquisition made easy

Commercial keyboards or barcode readers can easily be connected and used with the XP.



Choice of second interface

Bluetooth, Ethernet or USB: the XP guarantees to connect. Choose one of 7 possible auxiliary interfaces.



Stand

To save space and protect it from dirt, the terminal can also be mounted on a stand.

High-Capacity Weighing up to 64 kg

XP balances with M and L platforms are the first choice for high-capacity weighing jobs. Their robust design and leading-edge weighing technology guarantee fast results in all environments. The color touchscreen display and a set of clever accessories make operation amazingly easy – and enable dedicated weighing solutions.



XP high-capacity precision balances

All models can offer:

- Built-in QM Tools (MinWeigh, LevelControl, user management with password protection, BalanceCheck, ChangeHistory etc.)
- Protect applications with password
- Alphanumeric sample identification, 4 IDs per sample
- Sensors allowing hands-free operation
- Download software from the internet
- Display various weighing units
- Factorize
- Piece counting, formulation, % and dynamic weighing, statistics, density determination and differential weighing
- Be adapted to the environment and weighing process
- Large, chemical-resistant stainless steel weighing pans
- Overload protection
- Removable terminal
- Communicate in 7 languages (e, d, f, i, sp, russ, jap)
- Easy connection to LabX PC software

www.mt.com/xp-precision



For more information

Don't forget accessories

For the complete range
see pages 50–71

ServiceXXL Tailored Services

Recommended:
Professional
service contract.
See pages 6–11

M platform	Maximum capacity	Readability	Repeatability	Linearity	Weighing pan	Part No.
XP6002M DeltaRange	1200 g → 6100 g	0.01 g/0.1 g	0.01 g/0.06 g	0.06 g	237 x 237 mm	11130233
XP12002M DeltaRange	2400 g → 12100 g	0.01 g/0.1 g	0.01 g/0.06 g	0.06 g	237 x 237 mm	11130239
XP8001M	8100 g	0.1 g	0.08 g	0.1 g	237 x 237 mm	11130245
XP8001M DeltaRange	1600 g → 8100 g	0.1 g/1 g	0.08 g/0.6 g	0.6 g	237 x 237 mm	11130251
XP12001M	12100 g	0.1 g	0.08 g	0.1 g	237 x 237 mm	11130257
XP16001M	16100 g	0.1 g	0.08 g	0.2 g	237 x 237 mm	11130735
XP16001M DeltaRange	3200 g → 16100 g	0.1 g/1 g	0.08 g/0.6 g	0.6 g	237 x 237 mm	11130732
XP20001M	20100 g	0.1 g	0.08 g	0.2 g	237 x 237 mm	11130738
XP12000M*	12100 g	1 g	0.6 g	0.6 g	237 x 237 mm	11130263
XP20000M*	20100 g	1 g	0.6 g	0.6 g	237 x 237 mm	11130741
L platform						
XP8001L	8100 g	0.1 g	0.08 g	0.2 g	280 x 360 mm	11130630
XP16001L	16100 g	0.1 g	0.08 g	0.2 g	280 x 360 mm	11130633
XP32001L	32100 g	0.1 g	0.08 g	0.3 g	280 x 360 mm	11130636
XP32001L DeltaRange	6400 g → 32100 g	0.1 g/1 g	0.1 g/0.6 g	0.3 g	280 x 360 mm	11130639
XP64001L	64100 g	0.1 g	0.1 g	0.5 g	280 x 360 mm	11130642
XP16000L	16100 g	1 g	0.6 g	0.6 g	280 x 360 mm	11130645
XP32000L	32100 g	1 g	0.6 g	0.6 g	280 x 360 mm	11130648
XP64000L	64100 g	1 g	0.6 g	0.6 g	280 x 360 mm	11130651

All models also available in verified version, except models marked with*.

Top Efficiency for Daily Routine

The XS is designed for trouble-free operation in high-throughput environments.

Precision balances
Excellence – XS Line



Built for Hard Work

The XS is extremely rugged and reliable. Its protection equivalent to IP54 makes it ideal for all environments.

20% Faster



Leading-edge technology
The measurement performance of the MonoBlocHighspeed weighing cell is peak.

Easy to Use



Alphanumeric keypad
enables easy sample identification.



Touchscreen display
makes operation clear, simple and very convenient.

XS precision balances



Touchscreen display

Makes operation easy and fast



GxP – compliant documentation

Seamless documentation, full traceability



FACT

Fully automatic internal adjustment



MonoBloc^{HighSpeed} technology

For peak weighing performance



Reliability

For smooth daily operation. Built of solid metal, resistant to chemicals.



IP54 inUse

Protection against dust and water



Bluetooth

Connectivity

RS232 built-in, slot for second interface (7 options, incl. wireless Bluetooth and Ethernet)



DeltaTrac

Graphically visualizes the remaining available capacity



Standard applications built-in



LabX PC software

For electronic data management (see pages 60/61)

High-Capacity Weighing

Large platforms and robust construction for high-capacity weighing.



All models can offer:

- Download software from the internet
- Alphanumeric sample identification
- Display various weighing units
- Factorize
- 7 built-in applications: % and dynamic weighing, statistics, piece counting, formulation and density determination
- Be adapted to the environment and weighing process
- Large, chemical-resistant stainless steel weighing pans
- Overload protection
- Communicate in 7 languages (e, d, f, i, sp, russ, jap)
- Easy connection to LabX PC software

www.mt.com/xs-precision

For more information

ServiceXXL
Tailored Services

Recommended:
Professional
service contract.
See pages 6–11

XS precision balances

Model	Maximum capacity	Readability	Repeatability	Linearity	Weighing pan	Part No.
XS203S	210 g	1 mg	0.9 mg	2 mg	127 x 127 mm	11130153
XS403S	410 g	1 mg	0.9 mg	2 mg	127 x 127 mm	11130156
XS603S	610 g	1 mg	0.9 mg	2 mg	127 x 127 mm	11130159
XS603S DeltaRange	120 g → 610 g	1 mg/10 mg	1 mg/6 mg	6 mg	127 x 127 mm	11130162
XS1003S	1010 g	1 mg	0.8 mg	2 mg	127 x 127 mm	11130165
XS802S	810 g	10 mg	8 mg	20 mg	170 x 205 mm	11130168
XS2002S	2100 g	10 mg	8 mg	20 mg	170 x 205 mm	11130171
XS4002S	4100 g	10 mg	8 mg	20 mg	170 x 205 mm	11130174
XS4002S DeltaRange	800 g → 4100 g	10 mg/0.1 g	8 mg/60 mg	60 mg	170 x 205 mm	11130177
XS6002S	6100 g	10 mg	8 mg	20 mg	170 x 205 mm	11130180
XS6002S DeltaRange	1200 g → 6100 g	10 mg/0.1 g	8 mg/60 mg	60 mg	170 x 205 mm	11130183
XS4001S	4100 g	0.1 g	80 mg	60 mg	190 x 223 mm	11130186
XS6001S	6100 g	0.1 g	80 mg	60 mg	190 x 223 mm	11130189
XS8001S	8100 g	0.1 g	80 mg	100 mg	190 x 223 mm	11130192

XS high-capacity precision balances

XS6001M	6100 g	0.1 g	0.08 g	0.06 g	237 x 237 mm	11130270
XS6001M DeltaRange	1200 g → 6100 g	0.1 g/1 g	0.08 g/0.6 g	0.6 g	237 x 237 mm	11130273
XS10001M	10100 g	0.1 g	0.08 g	0.1 g	237 x 237 mm	11130276
XS12001M DeltaRange	2400 g → 12100 g	0.1 g/1 g	0.08 g/0.6 g	0.6 g	237 x 237 mm	11130745
XS16001M	16100 g	0.1 g	0.08 g	0.2 g	237 x 237 mm	11130748
XS10000M*	10100 g	1 g	0.6 g	0.6 g	237 x 237 mm	11130279
XS16000M*	16100 g	1 g	0.6 g	0.6 g	237 x 237 mm	11130751
XS8001L	8100 g	0.1 g	0.08 g	0.2 g	280 x 360 mm	11130660
XS16001L	16100 g	0.1 g	0.08 g	0.2 g	280 x 360 mm	11130663
XS32001L	32100 g	0.1 g	0.08 g	0.3 g	280 x 360 mm	11130666
XS32001L DeltaRange	6400 g → 32100 g	0.1 g/1 g	0.1 g/0.6 g	0.3 g	280 x 360 mm	11130669
XS16000L	16100 g	1 g	0.6 g	0.6 g	280 x 360 mm	11130672
XS32000L	32100 g	1 g	0.6 g	0.6 g	280 x 360 mm	11130675

All models also available in verified version, except models marked with*.

Tailored Solutions For Precise Applications

Excellence X-Platforms and Industrial Terminals.
The perfect combination for highest accuracy in industrial applications

Precision balances
Excellence X-Platforms
and Industrial terminals



Right solution for your workplace

Available in three platform size (S,M and L), with a capacity from 210 g to 64 kg and a readability from 0.1 mg to 1 g, the X-Platform offers optimal capacity and the best sized weighing pans for every workplace.



Connecting X-Platform and IND-Terminal

The connection of an X-Platform to an IND-Terminal is as easy as you can imagine. All the application functionality of an IND-Terminal is now available with an X-Platform. Additionally, the calibration, test or filter setting of the X-Platform can be done via an IND-Terminal.

For more information on IND-Terminal see our Industry Catalog.

Product Overview X-Platform

The X-platforms are offered in three different platform sizes: S-, M- and L-platform. The 0.1 mg and 1 mg models are shipped with a Pro draft shield.

ServiceXXL
Tailored Services

Recommended:
Professional
service contract.
See pages 6–11

S-Plattform

Model	Maximum capacity	Readability	Repeatability	Linearity	Min. Weight (USP)	Part No.
X204S*	210 g	0.1 mg	0.2mg	0.2mg	360 mg	11130055
X404S	410 g	0.1 mg	0.1mg	0.2mg	180 mg	11130079
X404S Delta Range	80 g → 410 g	0.1 mg / 1 mg	0.1mg	0.6mg	180 mg	11130085
X203S	210 g	1 mg	0.9mg	2mg	1.5g	11130008
X603S*	610 g	1 mg	0.9mg	2mg	1.5g	11130014
X603S Delta Range	120 g → 610 g	1 mg / 10 mg	1mg	10mg	6 g	11130046
X1203S	1210 g	1 mg	0.8mg	2mg	1.2 g	11130062
X2003S Delta Range	500 g → 2100 g	1 mg / 10 mg	1mg	6mg	1.8 g	11130091
X5003S Delta Range	1000 g → 5100 g	1 mg / 10 mg	1mg	6mg	1.8 g	11130097
X1202S	1210 g	10 mg	8mg	20mg	1.8 g	11130073
X2002S	2100 g	10 mg	8mg	20mg	12 g	11130043
X4002S*	4100 g	10 mg	8mg	20mg	12 g	11130109
X6002S*	6100 g	10 mg	8mg	20mg	12 g	11130112
X6002S Delta Range	1200 g → 6100 g	10 mg / 0.1 g	8mg	0.1mg	12 g	11130115
X8002S	8100 g	10 mg	8mg	20mg	12 g	11130209
X10002S	10100 g	10 mg	8mg	20mg	12 g	11130212
X10002S Delta Range	2000 g → 10100 g	10 mg / 0.1 g	8mg	50mg	12 g	11130215
X4001S*	4100 g	0.1 g	80mg	60mg	120 g	11130146
X6001S	6100 g	0.1 g	80mg	60mg	120 g	11130149
X8001S	8100 g	0.1 g	80mg	0.1g	120 g	11130226
X10001S	10100 g	0.1 g	80mg	0.1g	120 g	11130229

M-Plattform

X12002M Delta Range	2400 g → 12100 g	10 mg / 0.1 g	10mg	60mg	120 g	11130242
X8001M	8100 g	0.1 g	80mg	0.1g	120 g	11130248
X12001M*	12100 g	0.1 g	80mg	0.1g	120 g	11130723
X12000M	12100 g	1 g	80mg	0.2g	120 g	11130260
X20001M	20100 g	0.1 g	0.6g	0.6g	1.2 kg	11130266
X20000M	20100 g	1 g	0.6g	0.6g	1.2 kg	11130729

L-Plattform

X16001L	16100 g	0.1 g	0.08g	0.2g	120 g	11130603
X32001L*	32100 g	0.1 g	0.08g	300mg	120 g	11130606
X64001L*	64100 g	0.1 g	0.1g	500mg	120 g	11130612
X32000L	32100 g	1 g	0.6g	0.6g	1200g	11130618

All models also available in verified version, except models marked with*.



www.mt.com/x-ind

For more information



Uncompromised Safety and Efficiency In Hazardous Areas

**Excellence XS Ex2 balances
enable efficient weighing
in ATEX Zone 2 environments.**

Precision balances
Excellence – XS Ex Line

Touchscreen display
Safe and simple operation thanks to the convenient touchscreen display with graphical user interface.

Stand for terminal
Save space and avoid soiling the terminal by using the optional stand.

ErgoSens
Freely placeable and individually configurable, the ErgoSens enables hands-free operation of the balance.

Built for hard work
The soil-resistant casing has easy to clean surfaces, while the robust construction offers complete overload protection.



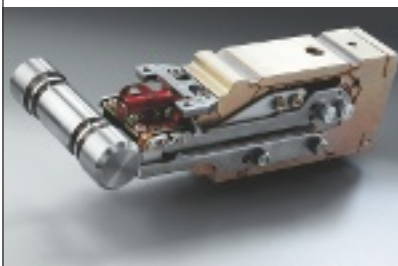
Compact draft shield

The sliding doors are easy to open and allow free access to the weighing chamber as well as convenient cleaning. To save valuable space, the windshield doors do not protrude behind the balance.



Stand-alone platform

Available in three sizes, the Ex2 platform is the perfect solution for integration into automated systems.



Leading-edge technology

MonoBloc^{HighSpeed} weighing cell for best weighing performance and unmatched ruggedness.



XS Ex2 precision balances



ATEX Zone 2

Approved for hazardous area zone 2 (category 3G).



Touchscreen display

Makes operation easy and fast



GxP – compliant documentation

Seamless documentation, full traceability



FACT

Fully automatic internal adjustment



MonoBloc^{HighSpeed} technology

For peak weighing performance



Reliability

For smooth daily operation. Built of solid metal, resistant to chemicals.



Bluetooth

Connectivity

RS232 built-in, slot for second interface (4 options, incl. wireless Bluetooth and Ethernet)



DeltaTrac

Graphically visualizes the remaining available capacity



LabX PC software

For electronic data management (see pages 60/61)

www.mt.com/xs-ex

For more information

All models can offer:

- Download software from the internet
- Alphanumeric sample identification
- Display various weighing units
- Factorize
- 7 built-in applications: % and dynamic weighing, statistics, piece counting, formulation, density determination
- Be adapted to the environment and weighing process
- Large, chemical-resistant stainless steel weighing pans
- Overload protection
- Communicate in 7 languages (e, d, f, i, sp, russ, jap)
- Easy connection to LabX PC software

ServiceXXL

Tailored Services

Recommended:
Professional
service contract.
See pages 6–11

XS precision balances

Model	Maximum capacity	Readability	Repeatability	Linearity	Weighing pan	Part No.
XS204SX	210 g	0.1 mg	0.2 mg	0.2 mg	Ø90mm	11121620
XS603SX	610 g	1 mg	0.9 mg	2 mg	127 x 127 mm	11121626
XS1003SX	1010 g	1 mg	0.8 mg	2 mg	127 x 127 mm	11121632
XS5003SX DeltaRange	1000 g → 5100 g	1 mg/10 mg	1 mg/6 mg	6 mg	127 x 127 mm	11121638
XS4002SX	4100 g	0.01 g	8 mg	20 mg	170 x 205 mm	11121644
XS6002SX	6100 g	0.01 g	8 mg	20 mg	170 x 205 mm	11121650
XS4001SX	4100 g	0.1 g	80 mg	60 mg	190 x 223 mm	11121656
XS6002MX DeltaRange	1200 g → 6100 g	0.01 g/0.1 g	10 mg/60 mg	60 mg	237 x 237 mm	11121674
XS6001MX	6100 g	0.1 g	80 mg	60 mg	237 x 237 mm	11121680
XS12001MX	12100 g	0.1 g	80 mg	100 mg	237 x 237 mm	11121686
XS32001LX	32100 g	0.1 g	80 mg	300 mg	280 x 360 mm	11121704
XS64001LX	64100 g	0.1 g	100 mg	500 mg	280 x 360 mm	11121710
XS32000LX	32100 g	1 g	600 mg	600 mg	280 x 360 mm	11121716
XS64000LX	64100 g	1 g	600 mg	600 mg	280 x 360 mm	11121722

All models also available in verified version.

Power supply for Ex Zone 2 (PS X2) has to be ordered separately. Part number: 11132730

Simply Weigh



Classic Plus precision balances

MonoBloc
inside

FACT

METAL
RS
232

A

For fast and reliable weighing results

Fully automatic internal adjustment
(Classic Plus models only)

Brilliant backlit display

All-metal diecast housing –
durable in harsh conditions

Built-in as standard connection
to PC or printer

Glass draft shield with sliding doors.
Free access from right, left and above

Built-in applications

Simply Reliable

The chemical-resistant metal housing and MonoBloc weighing cell with overload protection guarantee a long service life at an attractive price.

All models can offer:

- Piece counting, % weighing, dynamic weighing
- Be adapted to the weighing process
- Display various weighing units
- Free Factor for multiplying and dividing calculations (Classic Plus models only)

Classic Plus

FACT

Model	Maximum capacity	Readability	Repeatability	Weighing pan	Part No.
PB153-S/FACT	151 g	0.001 g	0.001 g	Ø 100 mm	11139590
PB303-S/FACT	310 g	0.001 g	0.001 g	Ø 100 mm	11139594
PB303-SDR/FACT	60 g → 310 g	0.001/0.01 g	0.001/0.008 g	Ø 100 mm	11139598
PB403-S/FACT	410 g	0.001 g	0.001 g	Ø 100 mm	11139602
PB503-S/FACT	510 g	0.001 g	0.001 g	Ø 100 mm	11139606
PB602-S/FACT	610 g	0.01 g	0.01 g	Ø 180 mm	11139610
PB1502-S/FACT	1510 g	0.01 g	0.01 g	Ø 180 mm	11139614
PB3002-S/FACT	3100 g	0.01 g	0.01 g	Ø 180 mm	11139618
PB3002-SDR/FACT	600 g → 3100 g	0.01/0.1 g	0.01/0.08 g	Ø 180 mm	11139622
PB4002-S/FACT	4100 g	0.01 g	0.01 g	Ø 180 mm	11139626
PB1501-S/FACT	1510 g	0.1 g	0.08 g	180 x 180 mm	11139630
PB3001-S/FACT	3100 g	0.1 g	0.08 g	180 x 180 mm	11139634
PB5001-S/FACT	5100 g	0.1 g	0.08 g	180 x 180 mm	11139638
PB8001-S/FACT	8100 g	0.1 g	0.08 g	180 x 180 mm	11139642
PB8000-S/FACT	8100 g	1 g	0.8 g	180 x 180 mm	11139646

All models offer fully automatic internal adjustment (FACT) and are available in verified version.

Classic

Model	Maximum capacity	Readability	Repeatability	Weighing pan	Part No.
PB153-L	151 g	0.001 g	0.001 g	Ø 100 mm	11139526
PB303-L	310 g	0.001 g	0.001 g	Ø 100 mm	11139530
PB303-LDR	60 g → 310 g	0.001/0.01 g	0.001/0.008 g	Ø 100 mm	11139534
PB602-L	610 g	0.01 g	0.01 g	Ø 180 mm	11139538
PB1502-L	1510 g	0.01 g	0.01 g	Ø 180 mm	11139542
PB3002-L	3100 g	0.01 g	0.01 g	Ø 180 mm	11139546
PB3002-LDR	600 g → 3100 g	0.01/0.1 g	0.01/0.08 g	Ø 180 mm	11139550
PB1501-L	1510 g	0.1 g	0.08 g	Ø 180 mm	11139554
PB3001-L	3100 g	0.1 g	0.08 g	Ø 180 mm	11139558
PB5001-L	5100 g	0.1 g	0.08 g	Ø 180 mm	11139562
PB8001-L	8100 g	0.1 g	0.08 g	Ø 180 mm	11139566
PB8000-L	8100 g	1 g	0.8 g	Ø 180 mm	11139570

All models offer manual adjustment with external weight and are available in verified version.



Simply Tough

The rugged weighing pan extends over the entire balance housing. The very flat construction makes placing large and heavy containers on the weighing pan simple.

MonoBloc
inside

METAL

A

**RS
232**

SB high-capacity precision balances

For fast and reliable weighing results

All-metal diecast housing – durable in harsh conditions

Built-in applications

- Piece counting
- % weighing
- dynamic weighing

Built-in as standard connection to PC or printer

All models can offer:

- Display various weighing units
- Rugged and chemical-resistant housing
- Large stainless-steel weighing pan

Model	Maximum capacity	Readability	Repeatability	Weighing pan	Part No.
SB8001	8100g	0.1 g	0.1 g	349x232 mm	230041
SB12001	12100g	0.1 g	0.1 g	349x232 mm	230042
SB16001	16100g	0.1 g	0.1 g	349x232 mm	230045
SB16001DR	← 3200g → 16100g	0.1/1 g	0.1/0.5 g	349x232 mm	230044
SB24001DR	← 4800g → 24100g	0.1/1 g	0.1/0.5 g	349x232 mm	230047
SB32001DR	← 6400g → 32100g	0.1/1 g	0.1/0.5 g	349x232 mm	230049
SB8000	8100g	1 g	0.5 g	349x232 mm	230040
SB16000	16100g	1 g	0.5 g	349x232 mm	230043
SB32000	32100g	1 g	0.5 g	349x232 mm	230048

All models offer manual adjustment with external weight and are available in verified version.

When Portability is Key

Classic Light

- Compact design
- Battery operation
- Single-key operation
- verified models available
- RS232 interface optional
- Auxiliary display optional (PL-S only)



Model	Max. capacity	Readability	Part No.
PL83-S	81 g	0.001 g	12110070
PL203-S	210g	0.001 g	12110000
PL202-S	210g	0.01 g	12110000
PL602-S	610g	0.01 g	12110040
PL802-S	810g	0.01 g	12110101
PL1502-S	1510g	0.01 g	12120050
PL601-S	610g	0.1 g	12110010
PL1501-S	1510g	0.1 g	12110020
PL3001-S	3100g	0.1 g	12110090
PL6001-S	6100g	0.1 g	12110060
PL8001-S	8100g	0.1 g	12110111
PL6000-S	6100g	1 g	12110030
PL202-L	210g	0.01g	12106440
PL402-L	410g	0.01g	12106445
PL602-L	610g	0.01g	12106450
PL601-L	610g	0.1g	12106455
PL1001-L	1100g	0.1g	12106460
PL2001-L	2100g	0.1g	12106465
PL4001-L	4100g	0.1g	12106470
PL6001-L	6100g	0.1g	12106475
PL6000-L	6100g	1g	12106480

Low-budget Weighing

Classic Light

- Single-key operation
- External adjustment weight
- Rugged construction
- RS 232 interface



Model	Max. capacity	Readability	Part No.
PL303	310g	0.001 g	12120514
PL403	410g	0.001 g	12120561
PL3002	3100g	0.01 g	12120516
PL4002	4100g	0.01 g	12120563

www.mt.com/classic

For more information

ServiceXXL

Tailored Services

Recommended:
Professional
service contract.
See pages 6–11

Don't forget accessories

For the complete range
see pages 50–71

Fast, Precise and Reliable

The METTLER TOLEDO family of halogen moisture analyzers provides fast, precise and reliable moisture determination in the laboratory and on the factory floor. Our industry solutions offer full compliance with regulations for the pharmaceutical industry, highest resolution for plastics and robust, simple-to-use instruments for the food industry.

Moisture analyzers
HR/HG/HB/MJ Line



Halogen Heating for Best Results

METTLER TOLEDO introduced the innovative halogen heating technology as first company to the market. The low mass of the halogen lamp heats up immediately. The circular lamp ensures, uniform sample heating. For reproducible results within minutes – right from the first sample.



Select the Right Moisture Analyzer

Excellence Plus

Ideal for R&D and regulated environments

HR83

With a readability of 0.1 mg, password protection and traceable sample identification, the HR83 offers secure and documented results – for full regulatory compliance. AutoMet substantially accelerates method development and helps to further increase productivity.

Excellence

Reliable choice for routine applications

HG63

Easy operation, multiple drying methods, sample identification and high method flexibility make the HG63 the ideal tool for fast and reliable routine testing.

Classic Plus

Compact analytical power for lab and production

HB43-S

The HB43-S combines halogen heating technology with analytical power. The rapid drying program provides faster results for enhanced productivity. The extensive method library simplifies method development.

Classic Light

Rugged and reliable for routine operation

MJ33

The MJ33 offers rugged design, basic functionality and simple operation for routine operation. E.g. in goods-in inspection on the factory floor.



HR83 Halogen Moisture Analyzer

The Professional Solution for R&D and Regulated Environments

Highest level of security, very precise measuring technology and excellent repeatability characterize the HR83 moisture analyzer. This powerful tool supplies results which comply with the most stringent regulations. Profit from automatic method development tools to save lab time and reduce development costs.



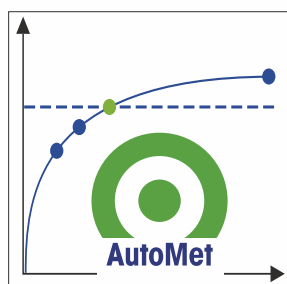
Full compliance to SOP's and regulations

The HR83 is ideal for regulated areas. All features required to achieve compliance are provided.



Precision and repeatability

The outstanding measurement performance of the HR83 is based on METTLER TOLEDO analytical weighing technology. For precise results with up to 0.001% moisture content resolution.



AutoMet – reduces development time

Obtaining a result which matches the reference value is effortless with AutoMet, cutting development time up to 50%.

HG63 for reliable routine work

Choose the HG63 if you need fast and repeatable results. A choice of drying programs, direct access to 10 methods and state of the art heating and weighing technology make the HG63 the perfect solution for routine testing.



HB43-S Compact Halogen Moisture Analyzer For Laboratory and Production

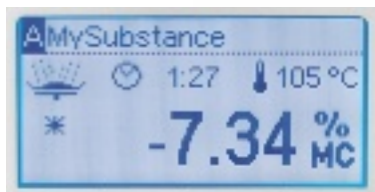
The HB43-S Halogen Moisture Analyzer combines outstanding halogen heating technology with strong analytical power in a compact format.

Moisture analyzers
HR/HG/HB/MJ Line



Method access with 2 direct keys

Directly switch between two drying methods at the push of a button. The method name is displayed in clear text for error-free operation.



All information displayed

Alphanumeric method names and the target-weight indication ensure precise result. Customized method names describe your substances.



Integrated method library

More than 100 ready-to-use methods simplify method development. All methods correspond to official regulations.

Halogen heating for best results

The circular halogen lamp ensures quick, uniform sample heating. Superior technology for highly reproducible results within minutes.



MJ33 Compact Moisture Analyzer

The robust solution for routine inspection

The MJ33 offers rugged design, basic functionality and simple operation for daily routine inspection. It is particularly well suited for use on the factory floor, e.g. during goods inspection. Two metal heating elements warm up the sample.



www.mt.com/moisture
www.mt.com/moisture-methods

For more information

HR, HG, HB and MJ moisture analysers

	Maximum sample weight	Readability (%)	Repeatability with 10 g sample	Heating technology	Temperature range	Method storage and development	Printer	Part No.
HR83	81 g	0.01/0.001	0.01%	Halogen	40–200 °C	40/AutoMet	HA-P43	00214702
HR83-P	81 g	0.01/0.001	0.01%	Halogen	40–200 °C	40/AutoMet	Built-in	00214703
HG63	61 g	0.01	0.01%	Halogen	40–200 °C	10/Test function	HA-P43	00214700
HG63-P	61 g	0.01	0.01%	Halogen	40–200 °C	10/Test function	Built-in	00214701
HB43-S	54g	0.01	0.015%	Halogen	50–200 °C	2	RS-P42	11121800
MJ33	35g	0.01	0.05%	Infrared	50–160 °C	1	RS-P26	11121810
LabX direct moisture software for easy data transfer								11120339

ServiceXXL
Tailored Services

Recommended:
Professional
service contract.
See pages 6–11

Don't forget accessories
For the complete range
see pages 63

Pipette Calibration Solutions

Rapid, Ergonomic and Compliant to ISO 8655

Boost your efficiency in multi-channel pipettes calibration
Calibrate your multi-channel pipettes with a dispensed volume of $\geq 10 \mu\text{l}$. Check 12 channels at a time in a single step with the MCP System.



Flexible

Exchange the 12-channel transport carriage with the supplied glass evaporation trap and calibrate your single-channel pipettes in a trice.



Portable

The MCP1-S system, delivered with a transport case, is ideal for on-site calibration.



Scalable

Combine up to 5 MCP workstations for high-throughput pipette calibration.



Calibrate your micropipette at high speed with the XP26PC microbalance

Based on the Excellence Plus microbalance line, the XP26PC is a dedicated solution for pipette calibration. With a readability of 1 µg, the XP26PC fulfills the calibration requirements of ISO 8655 for micropipettes (volume ≥ 1 µl) and is 3 times faster than a conventional balance.



Rapid and ergonomic

The integrated light barrier for hands-free operation offers optimal ergonomics: the lid of the evaporation trap automatically opens as soon as a pipette passes the light barrier.

Calibry Calibration Software for efficient data management

The Calibry Software guarantees complete data management and full traceability according to FDA 21 CFR Part 11. Optimizing the calibration of pipettes according to ISO 8655, the Calibry Software supports all MCP systems, XP26PC and conventional balances.

Station	20 µl		100 µl	
	Operator	Result	Operator	Result
Station 1	10.10	0.10	10.10	0.10
Station 2	10.10	0.10	10.10	0.10
Station 3	10.10	0.10	10.10	0.10
Station 4	10.10	0.10	10.10	0.10
Station 5	10.10	0.10	10.10	0.10
Station 6	10.10	0.10	10.10	0.10
Station 7	10.10	0.10	10.10	0.10
Station 8	10.10	0.10	10.10	0.10

Intuitive and powerful

The Calibry Software guides the user step by step through the calibration process. Passed and failed channels are immediately visible.

Model	Order number
MCP1-S (including evaporation trap multi- and single-channel, transport case and accessories)	11138007

Technical data MCP workstation

Number of channels	Up to 12
Evaporation trap	Built-in
Readability	0.01 mg
Maximum capacity	101 g
Standard measurement uncertainty	0.02 mg
Dimension (L x W x H)	510 x 177 x 165 mm

Version of PC-Software

Calibry light	11138423
Calibry	11138419
Calibry Network	11138420

Model	Order number
XP26PC	11106021

Technical data XP26PC

Evaporation trap	Built-in
Readability	0.001 mg
Maximum capacity	22 g
Standard measurement uncertainty	0.0015 mg
Dimension (L x W x H)	487 x 263 x 296 mm

Evaporation traps

Evaporation trap for XP/XS analytical balances	11140043
Evaporation trap for XP56/XS26 microbalances	11140041

Automated Weighing Accelerates Processes



Fast 5-Place Weighing Module

Ideal for high-precision checkweighing, filling and pipette calibration.

Weighing modules
SAG/Modulo WM Line



Compact and Modular Design

Weighing sensor in metal housing
with free access from every side and
remote electronics unit.

Compact design

Due to its minimal height, the SAG xxx/01 is
ideal for applications where space is limited.

SAG Line						
Model	Maximum capacity	Readability	Repeatability (s)	Settling time	Size (LxWxH mm)	Part No.
SAG105	101 g	0.01 mg	0.05 mg	typ. 5 sec	220x128x97	238900
SAG285	81/210 g	0.01/0.1 mg	0.05/0.1 mg	typ. 3 sec	193x130x93	238807
SAG204	210 g	0.1 mg	0.1 mg	typ. 3 sec	193x130x93	238804
SAG203F	210 g	1 mg	0.5 mg	typ. 1 sec	193x130x93	238808
SAG204/01	210 g	0.1 mg	0.1 mg	typ. 3 sec	215.5x130x69	238903
SAG285/01	81/210 g	0.01/0.1 mg	0.05/0.1 mg	typ. 3 sec	215.5x130x69	238904

Fast, Rugged Precise and Direct

Our compact weighing modules are specifically designed for use in automated processes and harsh environmental conditions.

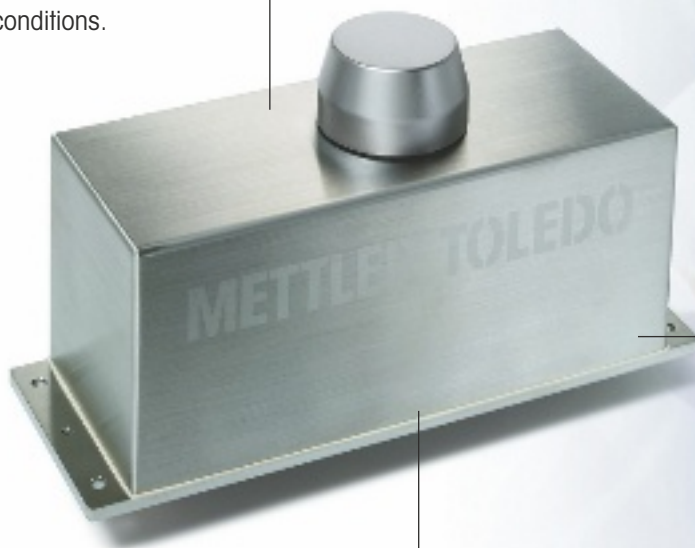


Peak productivity

Extremely short stabilization times speed up your processes.

Easy cleaning

The washdown version offers ingress protection IP66.



Approved for hazardous areas

Dedicated version for ATEX Zone 2
Intrinsically safe version for ATEX Zone 1
resp. FM Class I, Div. 1



Long lifetime

The stainless steel housing combined with overload protection guarantee reliable results under all conditions.



Low implementation cost

Directly connects to any process control system via RS232 or RS422. Accessory modules for Profibus, DeviceNet or Ethernet.



www.mt.com/ModuloWM
www.mt.com/sag

For more information

Modulo WM Line

Model	Maximum capacity	Readability	Repeatability (s)	Settling time	Size (DxWxH mm)	Part No.
WM124-L22	121 g	0.1 mg	0.1 mg	typ 0.5 sec	240x85x126	42102000
WM123-L22	121 g	1 mg	1 mg	typ 0.5 sec	240x85x126	42102004
WM503-L22	510 g	1 mg	1 mg	typ 0.5 sec	240x85x126	42102008
WM3002-L22	3100 g	10 mg	10 mg	typ 0.5 sec	240x85x126	42102012
WM6002-L22	6100 g	10 mg	10 mg	typ 0.5 sec	240x85x126	42102026

WM...-W...: Wash-down configuration
WM...-X...22: approved for use in Zone 2 (category 3G)
WM...X...CL: approved for use in Zone 1 (category 2G)



The Fast and Modular Concept For any Environment



High-Speed and Flexibility

Minimize cycle times due to high-speed weighing with the WXS weighing modules component version. The WXS modules integrate easily into your weighing system.



Adaptable to your needs

Mount your own weighing support structure to the flexible adapter weighing pan.



Connect your system

With various optional plug-in interfaces or connection modules including RS232, Ethernet, Profibus, DeviceNet or Bluetooth, the modules fit easily into your connectivity concept.



Ruggedness for a long lifetime

The stainless steel housing with mounting provisions is designed for analytical weighing in harsh environments.

WX weighing modules

GxP

GxP – compliant documentations

Seamless documentation according to GxP easily and flexibly configurable.

FACT

FACT

Automatic internal adjustment and linearization.



TouchScreen

Display with touch-screen technology for safe and simple operation.

RS 232

Connectivity

Built-in RS232 interface, optional second interface.

INOX

Stainless Steel

Housing reliably protects the weighing cell and electronics.

AA

Built-in applications



Adapter

Weighing below the balance.

All models can offer:

- Use with or without terminal
- Overload protection
- Weighing from below interface
- Multiple parameter configuration possibilities
- Up to 5 m cable length between loadcell and electronic unit
- 50 mm standard weighing pan and 36 mm adaptor weighing pan with mounting threads
- WXS: 206 x 127 x 70mm (L x W x H)
- WXT: 224 x 135 x 80mm (L x W x H)
- Optional carrying case

Maximum Flexibility with Benchtop Version

The WXT has accessibility from all sides with maximum flexibility for positioning of load cell, electronic unit and terminal.

Easy cleaning

The protective cover allows efficient cleaning to prevent cross-contamination.



Compatible accessories

All weighing modules are compatible with a wide range of accessories including the moisture trap for pipette calibration and compact draft shield.

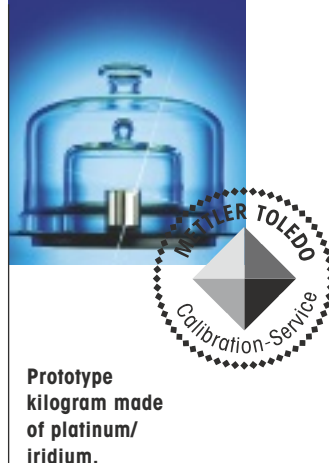


www.mt.com/wx

For more information

WXS – component		Max. Capacity	Readability	Repeatability	Linearity	Settling time	terminal	housing	Part No.
WXS205SDU/15 DualRange	110 g	220 g	0.01/0.1 mg	0.04/0.1 mg	0.25mg	3s/2s	none	stainless steel	11121008
WXSS205DU DualRange	110 g	220 g	0.01/0.1 mg	0.04/0.1 mg	0.25mg	3s/2s	monochrome	stainless steel	11121006
WXS204S/15		220 g	0.1 mg	0.1 mg	0.3mg	2s	none	stainless steel	11121023
WXSS204		220 g	0.1 mg	0.1 mg	0.3mg	2s	monochrome	stainless steel	11121021
WXT – benchtop version		Max. Capacity	Readability	Repeatability	Linearity	Settling time	terminal	housing	Part No.
WXTS205DU DualRange	110 g	220 g	0.01/0.1 mg	0.04/0.1 mg	0.25mg	3s/2s	monochrome	white coated	11121016
WXTS205DU DualRange	110 g	220 g	0.01/0.1 mg	0.04/0.1 mg	0.25mg	3s/2s	color	white coated	11121017
WXTS204		220 g	0.1 mg	0.1 mg	0.3mg	2s	monochrome	white coated	11121026
WXTS204		220 g	0.1 mg	0.1 mg	0.3mg	2s	color	white coated	11121027

Cutting-edge Technology For Versatile Applications



Comparators offer highest accuracy for advanced weighing applications and ensure traceability.

Achieve highest accuracy easily

Our manual comparator models offer a maximum capacity of up to 6000 kg. The doors of the weighing chamber of models up to 2 kg open automatically – which leaves your hands free to work with the sample. The menu-guided application leads you through the weighing process while the touchscreen simplifies operation. All models have an interface for data management.



Comparator
balances



Automated volume comparator

The VC1005 volume comparator determines volume and density of test weights (1g–1kg) by comparison of one test weight with one volume standard.



Nano-technology in vacuum

The vacuum system M_one measures masses up to 1 kg. The automated turntable combined with the triple-beam weighing pan guarantees highest repeatability and allows measurement of weights, spheres and mass of various shapes. The vacuum load lock and the vacuum transportation container are further options to improve measurement performance.

Comparator Balances

Model	Maximum capacity	Readability	Repeatability ⁵⁾	Part No
M_one ¹⁾	1001.5 g	100ng	500ng	Customer's solution
M_10 ¹⁾	10011g	1µg	8µg	Customer's solution
a5 ²⁾	5.1g	100ng	150ng	11107540
a107 ²⁾	111g	100ng	980ng	11107541
a100 ²⁾	111g	1µg	1.6µg	11107541
a1000 ²⁾	1109g	10µg	10µg	11107542
AX107H ²⁾	111g	100ng	800ng	11115765
AX106H ²⁾	111g	1µg	1.5µg	11115755
AX1006 ²⁾	1011g	1µg	2µg	11115725
AX10005 ²⁾	10011g	10µg	20µg	11115785
AX16004 ²⁾	16kg	0.1mg	0.2mg	11115815
AX32004 ²⁾	32kg	0.1mg	0.2mg	11115845
AX64004 ²⁾	64kg	0.1mg	0.4mg	11115875
UMX5	5.1g	0.1µg	0.4µg	11115575
XP26C	22g	1µg	1.5µg	11106022
XP56C	52g	1µg	3µg	11106023
AX106	111g	1µg	3µg	11115635
AX206	220g	2µg	4µg	11115935
AX1005	1109g	0.01mg	0.02mg	11115665
AX1004	1109g	0.1mg	0.07mg	11115695
AX2005	1109g (min 998g)	0.01mg	0.04mg	11115975
VC1005X	1109g	0.01mg	0.02mg	11115965
XP2004S	2300g	0.1mg	0.1mg	11130124
XP2003S	2300g	1mg	1mg	11130120
XP5003S	5100g	1mg	0.8mg	11130121
XP10003S	10100g	1mg	1mg	11130122
AX12004	12111g	0.1mg	0.2mg	11137811
XP26003L	26.1kg	1mg	3mg	11120685
XP32003L	32.1kg	5mg	10mg	11120686
XP64003L	64.1kg	5mg	8mg	11120688
XP64002L	64.1kg	10mg	25mg	11120687
XP64002L-T ⁴⁾	64.1kg	10mg	30mg	11120689
XP155KS	150kg	0.05g	0.15g	11120800
XP604KM	600kg	0.1g	0.3g	11120805
XP1003KM	1100kg	0.5g	3g	11120810
XP2003KL	2200kg	1g	10g	11120815
XP6002KL	6000kg	10g	100g	11120820

¹⁾ with automatic weight handler, vacuum and constant pressure

²⁾ with automatic weight handler

³⁾ Volume comparator

⁴⁾ Portable comparator balance

⁵⁾ Repeatability at full load



Robotic a_line comparator

For automatic determination of test weights by comparison of one test weight with one standard, or by downward (upward) calibration. Systems in the robotic a_line comparator each have a high-resolution up to nanogram accuracy, a weight magazine, a 3-axis robot, as well as the housing and the Windows®-based controller.



www.mt.com/comparators

For more information

Select the Right Accessory for Your Balance

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Professional Weighing Tables

Ergonomic and Efficient

Repetitive motions and static workplaces create user stress. METTLER TOLEDO weighing tables are an ergonomic solution that increases speed of weighing procedure. With its adjustable height and elbow cushions, the weighing table improves work efficiency, operating and convenience. The stabilisation time of the balance is shorter because the work surface is decoupled from the inner table. METTLER TOLEDO weighing tables foster reliable weighing and enhance your laboratory.



A weighing table for every balance type



Working Ergonomically

The user adjusts the height of the outer table to his or her own height and releases the neck and back muscles. The elbow cushions protect the user's arms during repetitive activities.



Low-vibration Table

A weighing table consists of two decoupled tables. The outer work surface absorbs impacts, while the balance on the inner table remains undisturbed. These versatile weighing tables are adaptable to every type of balance.

Technical data

Type	Article No	Width (mm)	Depth (mm)	Height (mm)
Weighing table XP26PC	11138041	760	803	784
Weighing table XP Micro	11138042	760	803	784
Weighing table MX	11138044	760	803	784
Weighing table MCP2	11138040	760	803	784
Weighing table MCP5	11138043	1380	1380	760

The Right Printer

For the Right Balance

RS-P42 printer BT-P42 printer (wireless)



RS-P42 for balance models: XS, XP, UMX, MX, AX, and moisture analyser HB43
BT-P42 for balance model: XP, XS

Rugged real-time printer for documentation of all data from the AX/MX/UMX, XS and XP balance application programs. It can be used for result printing on any balance with an RS232C interface or a Bluetooth interface (BT-P42)

The report header and sample identification are selected on the balance's easy-to-operate touchscreen.

RS-P42

Printing unit	Dot-matrix, 24 characters/line
Speed	1 line/sec
Interface	RS232C
Size	150x90x180 mm
Part No.	00229265

BT-P42 (same technical data as RS-P42)

Data transmission wireless (Bluetooth)	
Interface	BT, BTS
Part No.	11132540

LC-P45 printer



For balance models:
PG-S, SG, AB-S, PB-S, SB, AL, PL, PL-S

Real-time printer with GMP/GLP/ISO-compliant report printouts and built-in applications such as statistics functions, results totalizing, multiplication and division and pipette validation.

Selection of the report header and sample identifications as well as operation of the built-in applications via the LC-P45 printer's keyboard.

LC-P45

Printing unit	Dot-matrix, 24 characters/line
Speed	1 line/sec
Interface	LocalCAN universal/RS232C
Size	150x90x180 mm
Part No.	00229119

LC-P43 (same technical data as LC-P45)

For balances with LocalCAN interface	
Part No.	00229114

RS-P26 printer



For Classic Level balances
Part No. 12120788

Accessories for all printers

	Part No.
Paper roll, set of 5	00072456
Paper roll, self-adhesive	11600388
Ink ribbon, black	00065975
Extension cable LC – PR/SR/SG	00229161
RS9-RS9 cable – AX/MX/UMX/XS/XP/PG-S/PB-S/AB-S (standard with LC-P45, RS-P42)	11101051
BTS Option single point – Bluetooth interface, needed with BT-P42	11132535
BT Option multi point – Bluetooth interface, needed with BT-P42	11132530

For more information about these and other cables turn to page 61.

Density Determination

Truly Efficient

Fast and Reliable

Density determination becomes easy with METTLER TOLEDO's **density kit** for analytical and precision balances. It is ideal for solids, liquids, porous and viscous substances.

Accessories

Density determination

Integrated Solution

The XP and XS balances have built-in density determination software. It guides you step-by-step through the density determination of liquids, solids or pasty substances.



Easy and Convenient

The information on the balance display guides you through the density determination process.




```

Density
21.Aug 2007 13:16
Balance Type XS2050U
Method Solid
Liquid Water
Density AL 0.99744 g/cm3
Temperature 23.5 °C
Wgt. in Air 9.99986 g
Wgt. in Liquid 5.00458 g
Vol. Sample 5.013 cm3
Density 1.996 g/cm3

```

```

21.Aug 2007 13:17
Method Solid
With Compensation
n 3
x 1.9757 g/cm3
s 0.0015 g/cm3
Min 1.994 g/cm3
Max 1.997 g/cm3

```

Signature

Maximum Accuracy and Traceability

Comprehensive ISO- and GLP-compliant reports can easily be printed using a P42 printer. The statistical evaluation increases the accuracy of your results.



Standardized glass sinker

Available for determining the density of liquids (calibrated, if required).



Sensible addition

The density software can also use a gamma sphere to determine the density of viscous substances.

www.mt.com/density-determination

For more information

Accessories for density determination with balances

Balance	Description	Part No.
AB-S/PB-S/PB-L	AB-S density determination kit for liquids and solids	11106706
AB-S	AB-S density kit for density determination of solids	00033360
XS/XP precision	Density kit for 1 mg and 0.1 mg precision balance models	11132680
XS/XP analytical	Density kit for XS/XP analytical balances	11106706
AX	AX density kit for density determination of solids	00210485
SR/SG/SB	Feedthrough for below-the-balance weighing of large samples	21301097
Sinker	For density determination of liquids in conjunction with density kit 210485, 225600, 33360, 11106706 or 11132680	00210260
	Calibrated (sinker + certificate)	00210672
	Recalibrated (new certificate)	00210674
Calibrated thermometer	For density determination according to quality guidelines we offer a calibrated thermometer with certificate	11132685

Differential Weighing Makes Routine Jobs Easy



Advanced differential weighing functionality is provided with LabX balance versions "pro" and "light".

- You can weigh the samples in any order and choose the weighing sequence that best fits your process. Back-weighing a sample series according to USP is straightforward: you either weigh all tares, then all samples, then all tares again – or, for one sample, weigh tare, weigh sample, tare again and continue with the next sample.
- You can define results (e.g. the difference between two loops, or more complex formulas) and perform statistical quality control (target value, tolerances, statistics).



Accessories

**Differential weighing
SEC**

Integrated solution

The built-in software for differential weighing is activated at a keystroke. You have a choice of methods and sequences for initial weighing and re-weighing of up to 500 samples (XP). After weighing on the XP, MX/UMX balances, the samples are automatically grouped into as many as 99 series (XP). The series can be subsequently called up, processed and documented according to ISO/GLP.

Differential Weighing

www.mt.com/differential-weighing

For more information

	MX/UMX	XP	LabX light	LabX pro
	Micro & Ultramicro balances	Micro & Analytical & Precision balances	Refer to page 59	Refer to page 59
Product	Built-in	Built-in	PC software	PC software
Resolution of result	1 µg – 0.1 µg	1 µg – 1 g	depends on balance to be connected	depends on balance to be connected
Part number	–	–	11120317	11120301
Sample number (Max)	99	500	Unlimited	Unlimited
Series number (Max)	10	99	Unlimited	Unlimited
Number of residual weighings (Max)	3	3	19	19
Number of tare containers / sample	1	1	20	20
Statistical evaluations	•	–	•	•
Sample ID by Barcode reader	•	•	•	•
Workflow guidance	•	•	•	•
Workflow customization	–	–	•	•
Data management	Printer (optional)	Printer (optional)	Complete data management by PC	Complete data management by PC
21 CFR Part 11 support	–	–	–	•

Keep Filling under Control With Systematic Quality Control



The XP balance software offers a comprehensive SQC stand alone system for net weight and filling control. Overfilling reduces profit and underfilling is illegal. Our Statistical Quality Control systems ensure easy monitoring and control of your filling processes.

With the SQC-XP application, XP balances can be transformed into a compact stand alone system for net weight control and fill quantity control.

- Large graphic display with touchscreen operation
- Flexible and powerful for up to 100 products
- Weighing range from 1 microgram up to 64kg
- Supports automatic table feeder (LV11) for loading small items on the balance automatically
- Possibility to connect the wireless printer BT-P42



Software	Description	Part No.
SQC-XP	SQC software for XP precision balances	21901277

LV11 Automatic Feeder

The automatic tablet feeder for balances to facilitate SQC

Balance	Description	Part No.
Balances ¹⁾ with SQC instruments	LV11 feeder for automatically loading small items onto the balance	21900608
AX	Metal door with opening for LV11	11100088
XS/XP analytical	Draftshield door with opening for LV11	11106715
XP precision	Draftshield door with opening for LV11	11132711

¹⁾ Except AB-S, PB-S

SQC14 Filling Process Control

Compact SQC printer with integrated software are to be used with AX/XS/XP/AB-S/PG-S/PB-S balances. This compact system enables professional quality control of up to 60 articles even when space is limited. The clearly arranged keyboard and feedback of inputs on the balance display simplify operation. Printouts on normal paper allow certain and efficient control of filling quantities. Charts aid optimal adjustment of the filling plant.

Balance	Description	Part No.
AX/XS/XP AB-S/ PG-S/PB-S	SQC printer for control of up to 16 articles	00236210
	SQC printer for control of up to 60 articles	11236211

www.mt.com/sqc

For more information

Software

LabX Balance Data Management Software

LabX is a PC-based software solution that can control up to 31 balances connected to a network for efficient data management according to 21 CFR Part 11. For a single balance, a light version is available.

Flexible Data Export and Data Management

Transfer your weighing data automatically into an Excel spreadsheet or connect LabX to the LIMS. In any case your data is always accessible and secure. All data is stored in an industry-standard Microsoft SQL database, which shows comprehensive views while the user can print easily reports.

Collect and Manage Calibration Data

LabX controls adjustments and sends reminders to the users to enforce the required checks. LabX is able to lock the balance from running other weighing applications if calibration criteria are not met. For traceability a detailed calibration history is stored in the system.



Software	Description	Part No.
LabX balance	Powerful PC software for instrument control and data management	
	LabX pro version	11120301
	LabX light	11120307
	Instrument license pack 1	11120312
	Instrument license pack 3	11120313
	Instrument license pack 5	11120314
	Instrument license pack 10	11120315
	Instrument license pack 20	11120316
	Connect balance	11120310
	Validation manual 1	11120332
	Validation manual 2	11120333
LabX direct balance	PC software for easy data transfer into open applications (e.g. Excel)	11120340
Remote R	Software cassette for extended communication with PR/SR balances in a computer system	21900598
AX Remote	Software enabling AX/MX/UMX balances to act as input device for computer	21900935

Accessories

Excellence Balances



Description	Part No.	XP analytical	XP precision	XS analytical	XS precision
Draft shields					
Pro draft shield for 1 mg models, effective height 248 mm	11131651	n.a.	x	n.a.	x
Draft shield glass free for 1 mg models (food industry), effective height 248 mm	11131652	n.a.	x	n.a.	x
Draft Shield for 0.1 g and 10 mg models, effective height 175 mm	11131653	n.a.	x	n.a.	x
MagicCube draft shield for 1 mg and 0.1 mg models, effective Height 175 mm	11131650	n.a.	x	n.a.	x
Draft shield for whole balance, dimensions (WxDxH) 300x450x450 mm (MC W12)	11134430	n.a.	x	n.a.	x
Draft shield for whole balance, dimensions (WxDxH) 550x470x580 mm (MC W64)	11134470	n.a.	x	n.a.	x
Printers					
BT-P42 printer with wireless Bluetooth connection to balance	11132540	x	x	x	x
RS-P42 printer with RS232C connection to balance	00229265	x	x	x	x
ErgoClips					
ErgoClips weighing kit for different weighing containers used on the XS/XP analytical balances. (3 ErgoClips: for round-bottom flasks, weighing boats and test tubes; 20 weighing boats; 10 single-use aluminum pans)	11106707	x	n.a.	x	n.a.
ErgoClip Flask	11106764	x	n.a.	x	n.a.
ErgoClip Flask micro (for XP microbalances only)	11107879	x	n.a.	n.a.	n.a.
MinWeigh Door	11106749	x	n.a.	x	n.a.
MinWeigh Door micro (for XP microbalances only)	11107869	x	n.a.	n.a.	n.a.
ErgoClip Tube	11106784	x	n.a.	x	n.a.
ErgoClip Titration Basket	11106883	x	n.a.	x	n.a.
ErgoClip Weighing Boat	11106748	x	n.a.	x	n.a.
ErgoClip Round-Bottom Flask	11106746	x	n.a.	x	n.a.
ErgoClip Basket (small)	11106747	x	n.a.	x	n.a.
ErgoClip Basket micro (for XP microbalances only)	11107889	x	n.a.	n.a.	n.a.
Single-use aluminum weighing pans (10 units)	11106711	x	n.a.	x	n.a.
Filter weighing kit					
Filter weighing kit for XP analytical (up to dia. 110 mm)	11140000	x	n.a.	n.a.	n.a.
Anti-static kits					
Integrable anti-static kit for XP analytical balance, incl. 1 point electrode and power supply	11107761	x	n.a.	n.a.	n.a.
Optional second point-electrode for XP integrable anti-static kit	11107762	x	n.a.	n.a.	n.a.
Power supply for XP integrable anti-static kit	11107763	x	n.a.	n.a.	n.a.
Universal anti-static kit complete (U-shaped), including power supply	11107767	x	x	x	x
U-Electrode for universal anti-static kit (can be used with 11107763)	11107764	x	x	x	x
Point Electrode for universal anti-static kit	11107765	x	x	x	x
Power supply for external anti-static kit (requires optional electrode)	11107766	x	x	x	x
Sensors					
ErgoSens, optical sensor for hands-free operation	11132601	x	x	x	x
Weighing pans					
MPS (Magnetic Protection Shield) for 0.1 g model, 190x223 mm	11132625	n.a.	x	n.a.	x
MPS (Magnetic Protection Shield) for 10 mg model, 170x205 mm	11132626	n.a.	x	n.a.	x
Weighing pan 190x223 mm, incl. pan support	11132655	n.a.	x	n.a.	x
Weighing pan 170x205 mm, incl. pan support and draft ring	11132660	n.a.	x	n.a.	x
Optional interfaces					
BT option: interface Bluetooth, multipoint connection for up to 6 Bluetooth devices	11132530	x	x	x	x
BTS option: interface Bluetooth, single-point connection	11132535	x	x	x	x
Ethernet option: interface Ethernet for connection to Ethernet network	11132515	x	x	x	x

Accessories

Excellence Balances

Description	Part No.	XP analytical	XP precision	XS analytical	XS precision
Optional interfaces					
e-Link IP65 EBO1: Ethernet connection to the e-link network with IP65 protection	11120003	x	x	x	x
RS-USB converter cable	11103691	x	x	x	x
PS/2 option: interface for connecting commercial keyboards and barcode readers	11132520	x	x	x	x
RS232C option: interface for connection of a printer (RS-P42), computer or titrator	11132500	x	x	x	x
LocalCan option: interface for connection of up to five LC (LocalCan) instruments	11132505	x	x	x	x
MiniMettler option: second interface MiniMettler, for connection to older (legacy) systems	11132510	x	x	x	x
IP54 AC adapter protection					
IP54 AC adapter protection	11132550	x	x	x	x
Density kits					
Density kit for XS/XP precision balance (1 mg and 0.1 mg models)	11132680	n.a.	x	n.a.	x
Density kit for XS/XP analytical balance	11106706	x	n.a.	x	n.a.
Certified Thermometer for Density Determination	11132685	x	x	x	x
Sinker 10 ml	00210260	x	x	x	x
Sinker 10 ml, certified model	00210672	x	x	x	x
Dynamic weighing kit					
Dynamic weighing kit for 0.1 and 10 mg models ("S" platform), 4 litre bowl	11132657	n.a.	x	n.a.	x
Auxiliary displays					
BT-BLD bluetooth aux. display for benchtop mounting. Wireless connection. Backlit LCD display.	11132555	x	x	x	x
RS/LC-BLDS auxiliary display for benchtop mounting or on balance. Backlit LCD display.	11132630	x	x	x	x
LC/RS-BLD auxiliary display on benchtop stand with backlit LCD display	00224200	x	x	x	x
Barcode readers					
RS232C barcode scanner	21901297	x	x	x	x
The following items are needed for operation (not included in 21901297):					
Power supply 5V	21901311				
RS232 F cable	21901305				
Null modem adaptor	21900924				
plus 1 of the following:					
Power cable EU*	21901313				
Power cable UK*	21901314				
Power cable US*	21901315				
Power cable AUS*	21901316				
RS232C barcode scanner – cordless	21901299	x	x	x	x
The following items are needed for operation (not included in 21901299):					
Same items as for the RS232C barcode scanner (except power supply 5V)	see above				
Power supply 12V	21901312				
Bluetooth barcode reader	21901298	x	x	x	x
For operation, one of the following needs to be ordered (not included in 21901298):					
Power cable EU*	21901313				
Power cable UK*	21901314				
Power cable US*	21901315				
Power cable AUS*	21901316				
PS/2 barcode reader	21901297	x	x	x	x
For operation, the following needs to be ordered (not included in 21901297):					
PS/2 wedge single cable	21901307				
PS/2Y barcode reader	21901297	x	x	x	x
For operation, the following needs to be ordered (not included in 21901297):					
PS/2 wedge twin (Y) cable	21901308				

* Select according to region of use



Description	Part No.	XP analytical	XP precision	XS analytical	XS precision
Pipette Calibration					
Evaporation trap for XP56/XP26	11140041	n.a.	n.a.	n.a.	n.a.
Evaporation trap for XP/XS	11140043	x	n.a.	x	n.a.
Evaporation trap for AX/AT	11140042	n.a.	n.a.	n.a.	n.a.
Evaporation trap for WXS/WXT/SAG	11138010	n.a.	n.a.	n.a.	n.a.
Reagent reservoirs, set of 50 reservoirs	17007544	n.a.	n.a.	n.a.	n.a.
Barometer	11600086	n.a.	n.a.	n.a.	n.a.
Certified Thermometer	11132685	n.a.	n.a.	n.a.	n.a.
Evaporation trap for MCP 20 ml	11138006	n.a.	n.a.	n.a.	n.a.
Calibration set for MCP, with E2 Weight 20 g	11138254	n.a.	n.a.	n.a.	n.a.
Glass tubes (set of 5 pcs) for MCP	11138253	n.a.	n.a.	n.a.	n.a.
Transport case for XP26PC	11106997	n.a.	n.a.	n.a.	n.a.
Glass tubes (set of 5 pcs) for XP26PC	11107605	n.a.	n.a.	n.a.	n.a.
Protective covers					
Protective cover for XP terminal only	11132570	x	x	n.a.	n.a.
Protective cover XS terminal only	11106870	n.a.	n.a.	x	x
Protective cover for weighing platform "S", 10 mg/0.1 g models (platform only)	11133034	n.a.	x	n.a.	x
Protective cover for weighing platform "M" (platform only)	11132574	n.a.	x	n.a.	x
Protective cover for XS balances with "S" platform, 10 mg/0.1 g models	11132571	n.a.	n.a.	n.a.	x
Protective cover for XS balances with "M" platform	11132572	n.a.	n.a.	n.a.	x
Protective cover for XS balances with "L" platform	11132573	n.a.	n.a.	n.a.	x
Stands and wall mountings					
Terminal stand for placement of the terminal 30 cm above weighing pan (S and M platform)	11132636	n.a.	x	n.a.	x
Terminal stand for placement of the terminal 30 cm above weighing pan (L platform)	11132653	n.a.	x	n.a.	x
Terminal and Printer stand for XS/XP analytical	11106730	x	n.a.	x	n.a.
Terminal wall mounting	11132665	x	x	x	x
Anti-theft device					
Steel cord	11600361	x	x	x	x
Terminal cable					
Terminal extension cable, 4.5 m	11600517	x	x	x	x
Filling-process control					
LV11 small-item transporter for automatic loading of small items on the balance	21900608	x	x	x	x
LV11 Draft shield door "Pro" for 0.1 mg- and 1 mg-models precision	11132711	n.a.	x	n.a.	x
LV11 Draft shield door for all XS/XP analytical balances	11106715	x	n.a.	x	n.a.
LC-I/O Box					
Relay interface for control of up to 8 external instruments from the balance	21202217	x	x	n.a.	n.a.
LC Footswitches					
Auxiliary footswitch with selectable function for the balance	11106741	x	x	x	x
LC footswitch with selectable function	00229060	x	x	x	x
Switchbox, connect up to 3 balances with LocalCan interface to a printer	00229220	x	x	x	x
Transport cases					
Transport case for XS/XP precision balance 10 mg/0.1 g models with space for printer (S-platform)	11132595	n.a.	x	n.a.	x
Transport case for all XS/XP analytical balances	11106869	x	n.a.	x	n.a.
Transport case for XP Microbalances	11106729	x	n.a.	n.a.	n.a.
XP-SE-kit					
Separate electronics kit for XP analytical balances	11106743	x	n.a.	n.a.	n.a.
Extension cable 0.6 m	00211535	x	n.a.	n.a.	n.a.
Extension cable 5.0 m	00210688	x	n.a.	n.a.	n.a.
Hook for weighing below the balance					
Hook for weighing below balance for "M" and "L" size platform (integral to "S" size platform)	11132565	n.a.	x	n.a.	x
Production certificate					
Production Certificate "Pro" for XS balances	11106895	incl.	incl.	x	x

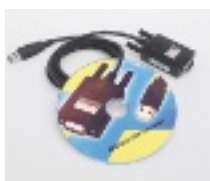
Accessories

Classic Balances



Description	Part No.	AB-S/FACT	AB-S	PB-S/FACT	PB-L	AL / PL	PL-S	PL-L
Weighing pans								
Pan Ø 175 mm (balances with a weighing pan Ø 180 mm require this pan when using a draft shield)	11103680	—	—	x	x	—	—	—
Pan Ø 120 mm (balances with a weighing pan Ø 160 mm require this pan when using a draft shield 12102988)	12102987	—	—	—	—	—	x	x
Draft shields								
Draft shield with sliding doors (left/right/top), height 237 mm	11103682	—	—	x	x	—	—	—
Draft shield with sliding doors (left/right/top), height 165 mm	11137468	x	x	x	x	—	—	—
Draft shield for 1 mg models, height 141 mm	11103683	x	x	x	—	—	—	—
Draft shield for standard models (xx3 models)	12105346	—	—	—	x	x	—	—
Glass cylinder for compact models	12102988	—	—	—	—	—	x	x
Round draft shield with sliding opening	12102505	—	—	—	—	—	x	x
Draft shield round for fast weighing	11137305	—	—	x	x	—	—	—
Protective covers								
Protective cover	11135408	x	x	—	—	—	—	—
Protective cover	11103681	—	—	x	x	—	—	—
Protective cover for standard models	12102970	—	—	—	—	x	—	—
Protective cover for compact models	12102980	—	—	—	—	—	x	x
AccuPac / Battery								
Independent rechargeable external power supply for operating balances for 8–15 hrs wxdxh (mm) 120x180x95. Cable length 150 mm	21254691	x	x	x	x	x	x	x
Rechargeable batteries (pack of 4)	12102935	—	—	—	—	—	x	—
Anti-theft device								
Steel cord with lock, 60 cm	00590101	x	x	x	x	x	x	x
Density kits								
Density kit for determination of solids	0033360	x	x	x	x	x	—	—
Density kit for determination of liquids with displacement body	0033360 + 00210260	x	x	—	—	x	—	—
Auxiliary displays								
LC/RS-BLD auxiliary display on benchtop stand with backlit LC display	224200	x	x	x	x	x	x	x
RS232 auxiliary display	12120057	x	x	x	x	x	—	x
PL-S auxiliary display	12102508	—	—	—	—	—	x	—
Transport cases								
Transport case has space for the draft shield 237 mm high	11103834	x	x	—	—	—	—	—
Transport case has space for the draft shield 165 or 141 mm high	11101050	—	—	x	x	—	—	—
Transport case for all compact models (without draft shield)	12102982	—	—	—	—	—	x	x
Printers								
LC-P45 application printer, plain-paper printer, 24 characters with additional functions (date, time, statistic, multiplier)	00229119	x	x	x	x	x	x	x
RS-P26 compact printer with RS232C interface, Ergonomically designed operation keys like Zero, Date/Time, Feed, Print	12120788	x	x	x	x	x	x	x

General Accessories



Interface Cables

LocalCAN interface		Part No.
LC-RS25 , connection cable for printer/or PC – IBM-AT & compatible (DB25 f/m, 2 m long) incl. interface box		00229050
LC-RS9 , connection cable for PC (DB9 f, 2 m long), includes interface box		00229065
LC-CL , connection cable for device with METTLER TOLEDO CL interface (2 m long) includes interface box		00229130
LC-RS open , connection cable to MT ComBus system (4 m long), includes interface box		21900640
LC-LC03 , extension cable for LocalCAN, 0.3 m		00239270
LC-LC1 , connection cable for use with LC-P45 & LC-P43		00229161
LC-LC2 , extension cable for LocalCAN, 2 m, includes connector		00229115
LC-LC5 , extension cable for LocalCAN, 5 m, includes connector		00229116
LC-LCT , T-unit for LocalCAN		00229118
LC-RS8 , connection cable for METTLER TOLEDO titrators DL50, DL53, DL55. Connection cable for METTLER TOLEDO titrators DL12, DL18, DL21, DL25, DL35.		00229185
DL40RG, DL40GP (1.5 m long), (LC-CL cable is also required, order no 229130)		00106090
USB-232 converter cable		
Intelligent expansion module that connects to a PC USB port. Baud rates 1200 to 115,2 K		11103691
RS232C interface		
RS9-RS25 , connection cable for printer or PC such as an IBM-XT and compatible – DB9 m/DB9f, 2 m long		11101052
RS9-RS9 , connection cable for printer or PC such as an IBM-XT and compatible – DB9 m/f, 1 m long (standard cable for connection to LC-P45, GA42 and Sprinter 1 printer – Sprinter 1 needs adapter)		11101051
RS9-RS9 , connecting cable to computer or RS-P42 printer, suitable for industrial balances (DB9 m/DB9 m, length 1 m)		21250066
MiniMettler		
RS232C connection cable for IBM XT or compatible (DB25 f, bidir. handshake, 1.5 m long)		00210491
RS232C connection cable for IBM AT or compatible (DB9 f, bidir. handshake, 1.5 m long)		00210493
RS232C connection cable for printer (DB25 m, bidir. handshake, 1.5 m long)		00210492
Terminal cable		
5 m (includes coverplates)		11100081

Data Interface Options

Balances	Description	Part No.
AX/MX/UMX	RS232C option Second interface, for the connection of a printer or to a computer	11100070
	LC option LocalCAN universal interface, for the connection of several devices	11100071
	MiniMettler interface For backward compatibility with MT/AT systems	11100072
PG-S	LC-G option LocalCAN universal interface, for the connection of several devices simultaneously (replaces the standard RS interface)	11101055
SB	LC-B option The SB balance comes fitted with an RS232C data interface. The LocalCAN option LC-B can be fitted in order to take advantage of LC peripherals	00228110
AB-S/PB-S	RS232C option for the connection of a printer or computer	11103678



LC Switchbox

Via LC switchbox you can connect up to 3 balances with LocalCAN interface to a printer.



	Part No.
LC switchbox	00229220

LC Input/Output Relay Interface

With the LC I/O programmable relay interface you can connect as many as 8 different large capacity devices (up to 8 ampere at 230 V) to your PR/SR balance.



	Part No.
LC I/O	21202217

Foot/Hand Switches

Foot/hand switches are ideal if the balance is hard to reach or cannot be operated easily.



Balances	Description	Part No.
PR/SR/AG/SG	LC-FS foot switch with adjustable function for balances with LocalCAN	00229060
AX/MX/UMX*	universal interface	
PG-S/XS/XP*		

* Optional LocalCAN interface required

Auxiliary Displays

You can set up auxiliary displays wherever you like or attach them directly to the balance using a stand.



Balances	Description	Part No.
All balances with RS232C interfaces	RS/LC-BLD Auxiliary display (weight value and unit only if defined) RS232C connection and external power supply	00224200
	RS/LC-BLDS for mounting on benchtop or balance. Connection by means of RS232C cable with backlit LCD display.	11132630
All balances with LocalCAN interfaces*	LC-PD Auxiliary display with a passive display (LCD) mounted on table stand	00229100
	LC-PDS Auxiliary display with a passive display (LCD) mounted on a balance stand	00229070
All balances with Bluetooth interface	BT-BLD (Bluetooth) auxiliary display, for benchtop mounting. Wireless connection from balance to display by means of Bluetooth wireless network with backlit LCD display.	11132555

* AX, MX, UMX, XS, XP, PG-S, PB, GB and SB need optional interface.

Control Units



Balances	Description	Part No.
PR/SR	LC-R terminal Control unit for PR and SR balances; allows you to set up the weighing platform and control unit separate from each other (standard with SR)	00239273
	Wall bracket for LC-R terminal, 2 m cable included	00239278
SR	S-stand for LC-R terminal, compatible with S platforms, cable included	00239268

NB. Ask for special information on PR/SR balances without display.

External Power Units

External, rechargeable power supply units. With the self-contained PowerPack, you can weigh conveniently anywhere you like, even outdoors.

For the use of AB-S and PB-S models in zone 2 areas please contact Laboratory Technical Support



Balances	Description	Part No.
AG/SB	PP-B10 PowerPack (compact) Independent rechargeable external power supply for operating balances for 8–10 hrs	00224500
SB	Mounting plate To attach the PowerPack PP-B10 to the balance	00230168
AG/PR/PG-S ¹⁾ /SB	AccuPac R/G/B Independent rechargeable external power supply for operating balances for 8–15 hrs, wxdxh (mm) 120x180x95. Cable length 150 cm	21254689

¹⁾ except PG-S 0.1 g models

Anti-Theft Devices

We have a number of anti-theft devices to prevent your balance from being stolen. They are tailored to the various balance models and have no effect on the weighing results.



Balances	Description	Part No.
AX	Anti-theft device with universal cable lock	11600361
AT	Metal bolt anti-theft device for through-table mounting	00210440
PR	Metal bolt anti-theft device for through-table mounting	00229175
AB-S/PB-S/SB/PR/SR/PG-S/SG/PL-S/AL/PL	Steel cable with lock	00590101
AG	Metal bolt anti-theft device for through-table mounting	00238480

Hook for Weighing Below the Balance

A **hook** is available underneath all balances for weighing beneath the balance. This is particularly useful in applications such as determining the density of large pieces.



Balances	Description	Part No.
Hook	Standard on all balances except SB, SG, SR, and GB16001 where it can be ordered separately	21301097

Draft shields improve quality of weighing results, especially for balances with fine readability ranges, (≤ 0.001 g) and protect your samples from environmental influences.



Draft Shields

Balances	Description	Part No.
MX/UMX	Inner draft disk. Improve stability in weighing performance & repeatability	11100075
AX/AT	Inner draft shield. Additional glass draft shield for all AT and AX balances	00210270
SAG	Draft shield (standard with the SAG105)	00238857
PR/PG PG-S	Draft shield with removable side glass panels for all PR/PG balances with 0.001 g/0.01 g readability. Net height of 135 mm (standard accessory with PR/PG-S balances with 1 mg readability)	00225269
PR/PG-S	High draft shield with 3 sliding doors for all PR/PG-S balances with 0.001 g/0.01 g readability. Net height of 265 mm	00225500

These covers are the perfect way to protect your balance against sample spills. All protective covers are chemically-resistant and easy to change.



Protective Covers

Balances	Description	Part No.	Qty
UMX/MX/AX	Protective in use cover for display only	11100830	1
UMT/MT/AT	Protective in use cover for display only	00210422	1
AX	Protective dust cover for the entire balance	11100089	1
AT	Protective dust cover for the entire balance	00210437	1
PR/SR/SG	Protective in use cover for PR terminal	00225266	2
	Protective in use cover for SR/SG terminal	00239305	2
PR/PG	Protective in use cover for housing of PR/PG balances with 0.001 g/0.01 g readability	00225267	2
	Protective in use cover for housing of PR/PG balances with 0.1 g/1 g readability	00225268	2
AG	Protective in use cover for terminal	00238470	1
	Protective dust cover for the entire balance	00238465	1
PG-S	Protective in use cover for housing of PG-S balances with 0.001 g/0.01 g readability	11101338	1
PG-S	Protective in use cover for housing of PG-S balances with 0.1 g/1 g readability	11101643	2
SB	In use cover for SB8000, SB8001, SB12001, SB16000, SB16001 and SB16001DR	00230018	2
	Protective in use cover for SB24001DR, SB32000 and SB32001DR	00230019	2

Barcode Scanners

For applications associated with weighing and instruments, the CCD (charged coupled device) RS232C barcode scanner, with its outstanding performance at typical reading ranges (3–18 cm), is the ideal solution.



	Balances AX/MX/UMX/XP/XS	Precision balances PR/SR	Moisture analyser HR83	Part No.
Barcode scanner (9600 baud, 8 bit, no parity, no HS)	•	•	•	21900879
Barcode scanner (cordless incl. AC adapter)	•	•	•	21900949
230V AC adapter EUR	•	•	•	21900882
115 V AC adapter	•	•	•	21900883
LC-RS9			•	00229065
LC-RS9-C		•		21300787
RS232Cm/m cable 0.3 m (also required)	•		•	02190024

Accessories for Moisture Analyzer

Accessories	Part No.
HA-TCC HR/HG-temperature calibration kit, with certificate for three temperatures	00214528
HA-TC Temperature calibration kit	00214455
HA-D90 Aluminum sample pans (80)	00013865
HA-DR1 Stainless-steel reusable pans (3) height 6 mm	00214462
Stainless-steel reusable pan (1) height 15 mm	00013954
HA-PH Sample pan handler. Facilitates removal of the hot sample pans (3)	00214526
HA-F1 Fibre pads for liquids (100)	00214464
HA-CAGE Gold cage for drying fibres	00214695

Accessories	Part No.
Transport case HA-CASE for HR and HG	00214515
Transport case for HB	11113855
Protective cover for keypad (2), HR and HG	00214533
Protective cover for keypad (2), HB	11113363
HA-P43 Printer for HR83, HG63	00214456
RS-P42 Printer for HB43	00229265
Paper (self-adhesive) for built-in printer HA-P43 and RS-P42 (3 rolls)	11600388
Paper for built-in printer HA-P43 and RS-P42 (5 rolls)	00072456
Ribbon for built-in printer HA-P43, LC-P45 and RS-P42 (black cassette)	00065975



Aluminum sample pan is best suited for all applications.



Absorbent glass-fiber filter

Equipment to Eliminate Electro-Static Charges



Neither positive nor negative: AntiStatic kits use a high voltage to generate positively and negatively charged ions. These are attracted by the electrostatically charged object and neutralize the disruptive electrostatic charge on the surface of the weighing sample. As a result, the forces which distort the weighing result disappear.

For XP analytical and micro balances: the integrable AntiStatic kit is available as an optional accessory. It is a point ionizer that can be fitted in six different positions, depending on sample size and shape, and whether the user is right or left handed. A second point ionizer can be installed on the opposite side of the weighing chamber to assure optimum protection and improved weighing efficiency. The AntiStatic kit is activated automatically with every door movement and does not swirl samples in the weighing chamber.

AntiStatic kit	Part No.
Built-in AntiStatic kit for XP analytical balances with power supply	11107761
Optional second point-electrode for AntiStatic kit	11107762
Optional U-shaped electrode	11107764
Power supply for AntiStatic kit for XP analytical balances (required for optional electrode 11107762 or 11107764)	11107763

Universal AntiStatic Kit

Advantage of our AntiStatic kits

- The AntiStatic kits generate positive and negative ions which discharge statically charged samples or tare containers within a few seconds.
- The AntiStatic kits does not generate any air turbulence in the weighing chamber and therefore does not swirl samples as may be the case with other products available in the market
- No additional operating steps are necessary

For analytical balances: the Universal AntiStatic kit can be used with practically all balances and weighing substances. The weighing sample or container is automatically discharged by passing it through the ionizer when the balance is being loaded.



Universal AntiStatic kit	Part No.
Universal AntiStatic kit complete (U-shaped), including electrode and power supply	11107767
Optional U-shaped electrode	11107764
Power supply for Universal AntiStatic kit (required for optional electrode 11107764 or 11107765)	11107766
Optional point electrode for discharging small samples	11107765



Terminal Cable for AX

Terminal cable 5 m
(includes cover plate).

Terminal cable		
Part No.	AX	11100081



Filter Weighing

Special filter kits for MX/UMX micro- and ultra-microbalances. For filter diameters up to 110 mm. Special construction prevents disturbance from environmental factors.



Funnel Set

For simple weighing of small quantities of powdery substances.

For balance models:
UMX/MX

UMX/MX funnel set		
Part No.		00211220

	Part No.
50 mm	00211227
110 mm	00211227

e-Link

integrates Measuring Instruments into Your Application via Ethernet

Networking saves time and money

Improve traceability and data security as well as avoid errors during important analyses or production processes.

e-Link supports METTLER TOLEDO instruments with serial RS232C interfaces. Our specialists will help you integrate your instruments into your company network.



System solutions for maximum process optimisation. e-Link can be integrated into existing software solutions such as LabX. (See page 70).

You can work with LabX without even touching a computer. Balances like the AX allow you to log on to LabX directly at the balance using "Remote" software. You don't need to connect the balance to a computer either. Just plug it directly into your company network via the e-Link box.

	Part No.
e-Link PRO With one RS232C connection	11120001
e-Link IP With IP65 protection	11120003
e-Link PRO With second RS232C for bar code reader	11120005
Options: Installation cable: RS232C-9P f/f crossed (included)	11600394
Cable to instrument: RS232C-9P f/m	11101051
RJ45 cable, category 5UTP – 3 m	11600395
RJ45 cable, category 5UTP – 5 m	11600396

Professional CarePacs

For Smooth Routine Testing

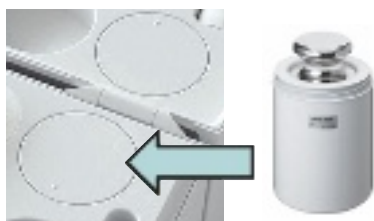
Perform routine testing of balances securely by applying two test weights only – with METTLER TOLEDO-recommended test weights included in your CarePac. Save time and costs with this unique approach and rely on accurate measuring results. CarePacs offer tweezers, gloves and other accessories for professional weight handling.



OIML weights

CarePacs offer:

- Two test weights recommended by METTLER TOLEDO specifically for each balance model
- Huge savings on initial and re-calibration costs of CarePacs compared with traditional weight sets
- Weights are calculated to validate process tolerances up to 0.03%

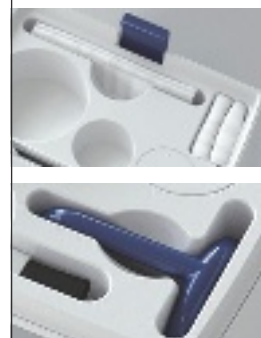


Customized Testing

CarePacs offer option to add 3rd weight between 1mg and 100g for customized testing, e.g. determination of minimum weight.

Professional Accessories

Ergonomic tweezers and weight forks, clean-room approved gloves and cleaning cloths match highest requirements of all industries.



Traceability and Work Instructions



Each CarePac is delivered calibrated and certified for traceable testing. CarePacs come with manufacturer designed SOPs to ensure consistent and accurate routine testing procedures.



Three sizes of CarePacs allow routine testing of balances up to 8 kg weighing capacity.

CarePacs S (OIML)
Weighing ranges up to 490 g

Set up	Order No	Balance models
200 g / 20 g	11123000	PB403
		XP404
		XS403
200 g / 10 g	11123001	AB204
		AB265
		AB304
		AL204
		EL202
		EL204
		EL303
		JB603-C
		JL1503-C
		PB303
		PL202
		PL303
		XP203
		XP204
		XP205
		XS203
		XS204
		XS205
100 g / 5 g	11123002	AB104
		AB135
		AL104
		EL104
		JB803-C
		JL203-CMR
		JL502-C
		JL603-C
		PB153
		XP105
		XS104
		XS105
50 g / 2 g	11123003	AB54
		AL54
		HG63
		HR83
		JB203-C
		JL203-C5
		PL83
		XP56
		XS64

CarePacs M (OIML)
Weighing ranges 500 g – 4900 g

Set up	Order No	Balance models
500 g / 20 g	11123007	JB2503-C
		JL602
		JL802
		PB503
		PB602
		PL601
		PL602
		XP504
		XP603
		XP802
		XS603
		XS802
1000 g / 50 g	11123008	JL1501
		JL1502
		PB1501
		PB1502
		PG1003
		PL1501
		PL1502
		XP1202
		XP1203
		XS1003
2000 g / 100 g	11123009	EL2001
		EL3002
		JB2002
		JB3002
		JL3001
		PB3001
		PB3002
		PL3001
		PL3002
		XP2001
2000 g / 200 g	11123010	XP2002
		XP2003
		XS2002
		EL4001
		JB4002
		PB4002
		PG4002
		XP4001
		XP4002
		XS4001
		XS4002

CarePacs L* (OIML)
Weighing ranges 5 kg – 8 kg

Set up	Order No	Balance models
5000 g / 200 g	11123011	EL6000
		EL6001
		JB6001
		JB8001
		JL6001
		PB5001
		PB8000
		PB8001
		PG6002
		PL6000
		PL6001
		XP5003
		XP6001
		XP6002
		XP8001
		XP8002
		XS6001
		XS6002
		XS8001

*Available as of 06/08

Customized 3rd weight
OIML Class E2

Value	Order No
1 mg	11123044
2 mg	11123045
5 mg	11123046
10 mg	11123047
20 mg	11123048
50 mg	11123049
100 mg	11123050
200 mg	11123051
500 mg	11123052
1 g	11123053
2 g	11123054
5 g	11123055
10 g	11123056
20 g	11123057
50 g	11123058
100 g	11123059

The new CarePacs: Think. Calculate. Place order.

Choose Suitable Weights

From our Comprehensive Weight Portfolio

No matter whether you need single weights to test your balance at specific points or an entire reference weight set to verify other weights – METTLER TOLEDO offers you the right solution.

Premium Line Weights E1, E2, F1

- For highest demands in Mass Laboratories and routine testing of analytical balances
- Made of finest, vacuum melted steel to avoid impurities
- Monobloc design and electro polishing of surface guarantee maximum mass stability

Basic Line Weights F1 AC, F2 AC, M1 – M3

- Perfect for routine testing of balances
- Economical design with adjusting cavity
- All weights made of premium stainless steel – no aluminum used for mg weights



Premium Line Weights

OIML weights

E1



E2



F1



Individual Weights	– in wooden box – without certificate	– in wooden box – with SCS certificate	– in wooden box – without certificate	– in wooden box – with SCS certificate	– in wooden box – without certificate	– in wooden box – with SCS certificate
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Nominal Value	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
1 mg	159000	159001	158300	158301	159410	159411
2 mg	159010	159011	158310	158311	159420	159421
5 mg	159020	159021	158320	158321	159430	159431
10 mg	159030	159031	158330	158331	159440	159441
20 mg	159040	159041	158340	158341	159450	159451
50 mg	159050	159051	158350	158351	159460	159461
100 mg	159060	159061	158360	158361	159470	159471
200 mg	159070	159071	158370	158371	159480	159481
500 mg	159080	159081	158380	158381	159490	159491
1 g	159090	159091	158390	158391	158600	158601
2 g	159100	159101	158400	158401	158610	158611
5 g	159110	159111	158410	158411	158620	158621
10 g	159120	159121	158420	158421	158630	158631
20 g	159130	159131	158430	158431	158640	158641
50 g	159140	159141	158440	158441	158650	158651
100 g	159150	159151	158450	158451	158660	158661
200 g	159160	159161	158460	158461	158670	158671
500 g	159170	159171	158470	158471	158680	158681
1 kg	159180	159181	158480	158481	158690	158691
2 kg	159190	159191	158490	158491	158700	158701
5 kg	159200	159201	158500	158501	158710	158711
10 kg	159210	159211	158510	158511	158720	158721
20 kg	159220	159221	158520	158521	158730	158731
50 kg	159230	159231	158530	158531	158740	158741

Weight sets

1 mg–500 mg	159300	159301	158800	158801	161700	161701
1 mg–200 g	159340	159341	158840	158841	158900	158901
1 mg–1 kg	159350	159351	158850	158851	158910	158911
1 mg–2 kg	11117614	11117615	11117624	11117625	11117802	11117803
1 mg–5 kg	11117616	11117617	11117626	11117627	11117804	11117805
1 g–50 g	159310	159311	158810	158811	158870	158871
1 g–500 g	159320	159321	158820	158821	158880	158881
1 mg–1 kg 2x	159360	159361	158860	158861		

Basic Line Weights

F1 AC



F2 AC



M1



Individual Weights	– in plastic box – without certificate		– in plastic box – with SCS certificate		– in plastic box – without certificate		– in plastic box – with SCS certificate		– in plastic box – without certificate		– in plastic box – with SCS certificate	
Nominal Value	Part No.		Part No.		Part No.		Part No.		Part No.		Part No.	
1 mg	11119491		11119561		11119079		11118271		11117935		11117751	
2 mg	11119492		11119562		11119080		11118272		11117936		11117752	
5 mg	11119493		11119563		11119081		11118273		11117937		11117753	
10 mg	11119494		11119564		11119082		11118274		11117938		11117754	
20 mg	11119495		11119565		11119083		11118275		11117939		11117755	
50 mg	11119496		11119566		11119084		11118276		11117940		11117756	
100 mg	11119497		11119567		11119085		11118285		11117941		11117757	
200 mg	11119498		11119568		11119086		11118286		11117942		11117758	
500 mg	11119499		11119569		11119087		11118287		11117943		11117759	
1 g	11119455		11119525		11119042		11118191		11118055		11117711	
2 g	11119456		11119526		11119043		11118192		11118056		11117712	
5 g	11119457		11119527		11119044		11118193		11118057		11117713	
10 g	11119458		11119528		11119045		11118194		11118058		11117714	
20 g	11119459		11119529		11119046		11118195		11118059		11117715	
50 g	11119460		11119530		11119047		11118196		11118060		11117716	
100 g	11119461		11119531		11119048		11118201		11118061		11117717	
200 g	11119462		11119532		11119049		11118202		11118062		11117718	
500 g	11119463		11119533		11119050		11118203		11118063		11117719	
1 kg	11119464		11119534		11119051		11118204		11118064		11117721	
2 kg	11119465		11119535		11119052		11118205		11118065		11117722	
5 kg	11119466		11119536		11119053		11118206		11118066		11117723	
10 kg	11119467		11119537		11119054		11118211		11118067		11117724	
20 kg	11119468		11119538		11119055		11118212		11118068		11117725	
Weight sets												
1 mg–500 mg	11119511		11119581		11118456		11118339		11117862		11117771	
1 mg–200 g	11119512		11119582		11118457		11118340		11117863		11117772	
1 mg–1 kg	11119513		11119583		11118458		11118341		11117864		11117773	
1 mg–2 kg	11119514		11119584		11118459		11118342		11117865		11117334	
1 mg–5 kg	11119515		11119585		11118460		11118343		11117866		11117775	
1 g–50 g	11119516		11119586		11118461		11118344		11117867		11117776	
1 g–500 g	11119517		11119587		11118462		11118345		11117868		11117777	

M1

Stainless steel



M1

Cast iron



Individual Weights	Weights only	Weights with SCS certificate	Weights without certificate	Weights with SCS certificate
Nominal	Part No.	Part No.	Part No.	Part No.
5 kg	11116600	11116601	160900	160901
10 kg	11116610	11116611	160910	160911
20 kg	11116620	11116621	160920	160921
50 kg	11116630	11116631	160930	160931

Weight accessories	Part No.
Tweezers for 1 mg–20 g	15900
Tweezers for 20 g–200 g	15901
Weight fork for 500 g–1 kg	222175
Weight fork for 2 kg	15902
Weight fork for 5 kg	15903
Weight handle for 10–20 kg	15904
Pair of leather gloves	72001
Glass bells on request	



www.mt.com/weights

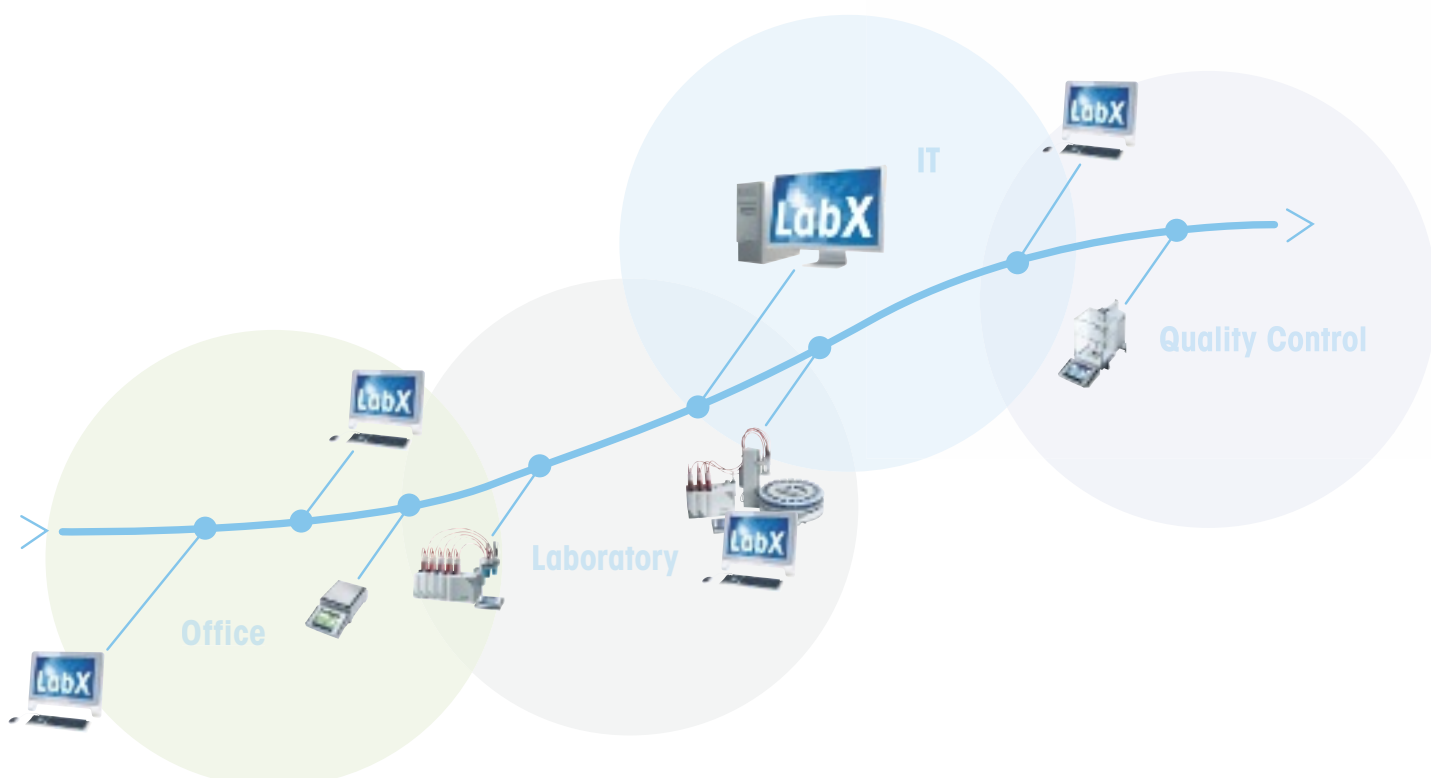
For more information

Complete Overview Total Control

Control Your Measurements From Anywhere with LabX

Instrument control software
LabX

With **LabX Pro**, measurements with balances and titrators can be controlled from any PC in the network. Simply connect your instruments to a PC or directly to the company Ethernet and you will be able to review data from your office or control measurements in real time while you are working in a different place. Your data will be stored in a central database and can be analyzed in a very comfortable, state-of-the-art, structured windows based software environment.



Manage Your Instruments More Efficiently

LabX will allow you to centrally manage your instruments. Tasks like checking the calibration data or updating methods can be done from one PC workstation. If desired, changes are applied automatically to all the connected instruments. This not only saves time but also avoids mistakes.



Get Full FDA 21 CFR Part 11 Support

LabX contains all the tools needed for data management and storage according to FDA regulations (21 CFR Part 11). The software provides comprehensive user management, access protection, electronic signature and audit trail functionality. To validate the system, METTLER TOLEDO offers full support and a two-volume validation manual which helps to keep validation cost down.



www.mt.com/LabX

For more information

LabX software for balances and titrators

	LabX pro balance	LabX light balance	LabX pro titration	LabX light titration
METTLER TOLEDO instruments supported	AX, MX, UMX, XP, AG, XS, PR, SR, PG-S, SG, AT, MT, UMT, AB-L, AB-S, PB-L, PB-S balances		T50, T70, T90, DL5x, DL7x and DL31, DL32, DL38, DL39 titrators	
Client server networking	•		•	
Control of multiple instruments	•		•	
Instrument management	•	•	•	•
Full FDA 21 CFR Part 11 support	•		•	
Direct access from balance (RapidAccess)	•	•		
Real-time online view/control	•	•	•	•
Job/method editor	•	•	•	•
Automatic statistics/control charts	•	•	•	•
Graphical result evaluation			•	•
Report generator	•	•	•	•
LIMS connectivity	•		•	
Part No. (English version)	11120304	11120307	51106500	51106550

RAININ®

Hand-friendly Pipetting

Avoid Pipetting Forces with RAININ®

Pipetting is the most repetitive task in many laboratories. Traditional pipettes require significant force to operate and researchers report tired or sore hands from frequent pipetting.

When pipetting more than one hour per day, your hand fatigues. This means less productivity and less precision. And you are increasing your risk of Repetitive Strain Injuries (RSI).

RAININ
Hand-friendly Pipetting

LTS™ LiteTouch™ Innovation

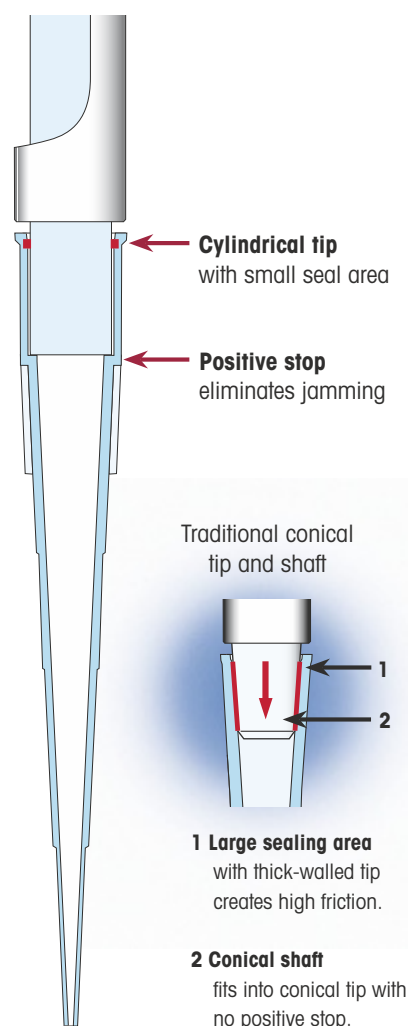
RAININ developed and introduced the revolutionary LiteTouch tip ejection system, the first new tip and shaft design on the market in over 30 years. The LTS system achieves force reduction of 85% or more compared to traditional conical tip/shaft designs.

Average tip ejection forces are reduced from 4 kilograms to 0.6 kilograms.

How it's Done

The cylindrical design of LTS produces a reliable, consistent seal without requiring excessive force. LTS tips are thin-walled and feature a small, well-defined seal area and a positive stop. The positive stop lets you know exactly when the seal is tight and prevents over-insertion of the pipette shaft into the tip. No need to "jam" or pound the shaft into the tip to seal. The low mounting force then also results in a very low tip ejection force.

Get rid of 85% tip ejection forces by using LTS™ tips





Hand-friendly

Low plunger and tip ejection forces, a comfortable grip, and a fingerhook to relax the hand, make E-Man Hybrid a pleasure for you to work with.

E-Man Hybrid: The Future of Manual Pipetting – Today!

E-Man hybrid pipette

E-Man Hybrid is the world's only pipette that uses real-time sensing technology to provide unique advanced features, never before seen in manual pipettes. The plunger position is continually updated on the LCD display in real time, producing highly accurate, four digit volume settings.

With this instant pipette information, along with features like a cycle counter or maintenance and technique alerts, the E-Man Hybrid enables you to expand your application capabilities and optimize your pipetting performance.



Real time display

The plunger position is continuously monitored to update the LCD. The display is used to rapidly set, track, and measure sample volumes. To help improve user technique, the PICKUP indicator shows when the pipette is at zero position.

Always in control

The E-Man Hybrid gives you the flexibility of a manual pipette, where you control operation, with a feature-set never before available on a manual system. There's no easier way to perform routine pipetting operations and access the many software features available on this pipette.

E-Man Hybrid with LTS Shaft/tips

Cat. No.	Order No.	Volume Range
H-2	17009086	0.1–2 µl
H-10	17009082	0.5–10 µl
H-20	17009087	2–20 µl
H-100	17009083	10–100 µl
H-200	17009088	20–200 µl
H-300	17009091	20–300 µl
H-1000	17009084	100–1000 µl
H-2000	17009089	200–2000 µl

Note: RAININ LTS tips must be used.

Pipet-Lite™:

Cares for Your Hand



RAININ
Manual Pipettes

Hand-friendly Pipetting

Avoid heavy pipetting forces with magnetic-assist technology. This innovation substantially reduces the need for a large differential between aspiration and blow-out springs to find the zero position, so both springs can significantly be lighter. No tired hands or pain means better and faster work in your lab.

Best Performance in Record Time

Consistent and fast sample pickup. Magnet technology assists your thumb to quickly find the zero position. This makes it easy to hold the plunger consistently at the exact position, ensuring that the proper amount of sample is aspirated every time. An innovation that improves your pipetting accuracy and reproducibility. Ultimate performance!

Prevents Risk of Repetitive Strain Injuries

Stop high tip ejection forces. Pipet-Lite combined with LTS LiteTouch tips reduces pipetting forces by up to 70%. No stress for your thumb.



Pipet-Lite force reduction with LTS...
Tip ejection and plunger forces decrease by 70%

L with LTS 0.6 kg
Traditional Pipette 4 kg

Pipet-Lite L with LTS Shaft/tips

Cat. No.	Order No.	Volume Range
L-2	17003635	0.1–2.0 µl
L-10	17003636	0.5–10 µl
L-20	17003641	2–20 µl
L-100	17003638	10–100 µl
L-200	17003642	20–200 µl
L-300	17007314	20–300 µl
L-1000	17003639	100–1000 µl
L-2000	17003643	200–2000 µl
L-5000	17003644	500–5000 µl
L-10ML	17003637	1–10 ml
L-20ML	17003640	2–20 ml

Note: RAININ LTS tips must be used. Pipet-Lite SL with standard shaft using traditional tips and fixed volume pipettes available.

Multichannel Pipettes

Perfect Performance at any Time



Speed and productivity with precision

RAININ multichannel pipettes load tips in as little as two seconds. Quick and easy. No rocking or hand-tightening is required. Increase productivity in your lab!

Consistent sample pickup on all channels

Traditional pipettes seal poorly and tips do not fit evenly. O-rings can cause contamination. RAININ has the solution: The positive stop of the LTS system lets you know exactly when the seal is tight and prevents over-insertion of the pipette shaft into the tip.

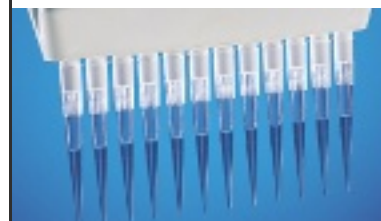
Save valuable samples and reagents

Poorly-fitting tips cause inconsistent sample loading, and in many cases work must be redone. LTS completely eliminates these problems.

Pipet-Lite multichannel

Fast and easy tip loading and ejection. Reliable and consistent. No hassle. No guessing. Robust construction provides years of consistent results and low-cost maintenance.

Leak-free and consistent sealing – everytime.



www.mt.com/rainin

For more information

Electronic Pipettes

Unmatched Accuracy and Reproducibility

Precise 1000 volume settings. Precise stepper-motor technology. A powerful and unique micro stepper motor allows you to set 1/1000 of the full scale – that's 1 μ l on a 1000 μ l pipette.

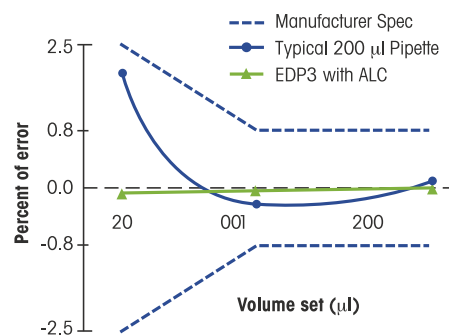
RAININ
Electronic
pipettes



Continuous power
for 3000 cycles. Reliable.

Unique Automatic Linearity Correction

Errors associated with the physics of moving liquids are automatically compensated and corrected. Using a patented correction factor at every volume setting, EDP3™ is the world's only pipette to exhibit a truly linear response over the entire volume range.



Advanced microprocessor technology

Provides consistent accuracy, user-to-user and sample-to-sample, by making piston movements operator-independent. The linear actuator moves the piston the correct distance and at the correct speed – totally independent of user variation.

One-hand Programming and Operation for all Functions

Easy-to-read display

Continuously shows the mode, status, volume and battery level

Mode key

Selects modes and options

Dual-actuator triggers

Left- or right-hand operation

Reset key

Returns piston to zero position and dispenses the remaining sample



Up/down arrows

Adjust volume, set speed and options

Pipette	Arrows select volume; triggers aspirate or dispense
Multidispense	Automatically calculates (or manually selects) the number of aliquots to dispense for the total volume aspirated
Dilute	Diluent and sample are aspirated separately, separated by a fixed air gap, and dispensed together
Titrate	Partially dispenses under trigger control to desired endpoint. Total volume dispensed shown on display
Manual	Measures unknown volumes, allows manual operation
GLP	Supplies operator log (cycles, date, technician ID)
Speed	Up to 10 settings for each mode
Mix	By repeated movement of liquid in and out of tip while trigger is pressed and held
Sequence	Aspirate and dispense up to 16 preset volumes in pipette, multidispense and dilute modes
Cycle counter	Displays number of samples dispensed up to 999
Sound	Tone signals when ready to aspirate and when sample is fully dispensed. On/off volume control
Fixed pipetting	Aspirate and dispense up to 6 preset volumes

EDP3-Plus with LTS cylindrical shaft

Cat. No.	Order No.	Volume Range
E3-10	17001743	0.5–10 µl
E3-20	17001749	2–20 µl
E3-100	17001745	10–100 µl
E3-200	17001750	20–200 µl
E3-300	17007243	20–300 µl
E3-1000	17001746	100 µl–1000 µl
E3-2000	17001751	200 µl–2000 µl
E3-5000	17001752	500 µl–5000 µl
E3-10ML	17001744	1000 µl–10000 µl
E3-20ML	17005842	2000 µl–20000 µl

Easy Handling and Advanced Software for Greater Flexibility

Long-life, rechargeable Li-ion battery included

Either a Rapid Charge Stand or Wall Power Supply must be purchased to charge the EDP3 battery.



Wall Power Supply E3-WPS 17001756

Completely recharges EDP3 in about an hour. Use the pipette while recharging, or operate directly from the Wall Power Supply without a battery.



Rapid Charge Stand E3-RCS 17001755

Stores up to three EDP3 pipettes and recharges them sequentially. May be used on a lab bench or mounted to a wall. Supplied with one Wall Power Supply (E3-WPS).

www.mt.com/rainin

For more information

RAININ LTS tips must be used with LTS pipettes. EDP3 SE with standard shaft using traditional tips also available.

EDP3™

Best for High-throughput Microwell Plate Applications

Increase productivity

Pipetting into 96-well plates with manual multichannel pipettes is physically demanding and tedious. Electronic speed setting from 1–10 and automatic aliquot dispensing down to 0.2 seconds help to do the work faster.

Multidispense does it all for you

EDP3-Plus calculates the number of aliquots that can be dispensed from one pickup. AUTOPACE simplifies repeat dispensing: Just touch the trigger once and repeat dispensing along the plate!



RAININ
Multichannel
Pipettes

Pipet-Lite

Multichannel Manual with LTS Shaft/tips

Cat. No.	Order No.	Volume Range
L8-10	17003631	1–10 µl
L8-20	17003632	2–20 µl
L8-50	17006820	5–50 µl
L8-200	17003633	20–200 µl
L8-300	17003634	20–300 µl
L8-1200	17005847	100–1200 µl
L12-10	17003627	1–10 µl
L12-20	17003628	2–20 µl
L12-50	17006817	5–50 µl
L12-200	17003629	20–200 µl
L12-300	17003630	20–300 µl
L12-1200	17006816	100–1200 µl
L2X8-20	17006819	2–20 µl
L2X8-100	17006818	10–100 µl
L24-20	17006443	2–20 µl
L24-100	17006442	10–100 µl

EDP3-Plus

Multichannel Electronic with LTS Shaft/tips

Cat. No.	Order No.	Volume Range
E8-10	17001734	1–10 µl
E8-20	17001753	2–20 µl
E8-50	17006770	5–50 µl
E8-200	17001754	20–200 µl
E8-300	17005841	20–300 µl
E8-1200	17005840	100–1200 µl
E12-10	17001733	1–10 µl
E12-20	17001747	2–20 µl
E12-50	17006767	5–50 µl
E12-200	17001748	20–200 µl
E12-300	17005839	20–300 µl
E12-1200	17006766	100–1200 µl
E2X8-20	17006769	2–20 µl
E2X8-100	17006768	10–100 µl
E24-20	17006343	2–20 µl
E24-100	17006342	10–100 µl

Note: RAININ multichannel pipettes are only available with LTS Lite Touch tip ejection. RAININ LTS tips must be used.

EDP3™ – Adjustable Spacer: Unleashing Multichannel Pipetting

The new “EDP3-Adjustable Spacer” allows you to increase your productivity by enabling you to use a multichannel pipette that can change the format spacing – go from 24-well to 96-well at a twist.

The EDP3-Adjustable Spacer offers all the benefits of the regular EDP3 system, from precision to comfort to LTS, but with the added flexibility of being able to set the distance between the channels yourself.

Move between formats and conquer new horizons in multichannel pipetting.

Adjustable spacing

A continuously variable spacing mechanism lets you choose the distance between the channels from 9mm (96-well format) to 14mm (24-well format) in either a 6 or 8 channel system for maximum flexibility.

Comfortable adjustment wheel

The smooth, yet precise and lockable adjustment wheel lets you set the desired distance effortlessly and ensures identical spacing between all channels.

Spacing marks

The easy-to-read spacing marks ensure a proper setting without guessing.



No hand-tightening needed



www.mt.com/rainin

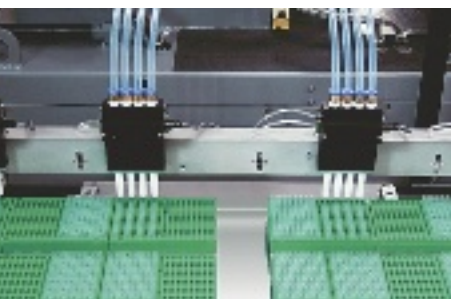
For more information

Pipette Tips Absolutely Clean

RAININ's fully-automated manufacturing process minimizes product exposure to contamination from handling.

The virgin polypropylene raw material is automatically fed into state-of-art molding machines. At molding temperatures of 450°C, tips are effectively sterilized. Automated tip loading and stringent staff training according to ISO9001 procedures ensure that tip products are always kept free of contamination.

RAININ
Bioclean
Pipette Tips



Robotic tip-loading eliminates human contact

Clean Packaging

Another important part of the process is clean packaging. Tip products are shrink-wrapped, boxed and labeled by a traceable lot number under the same clean room conditions in which tips are manufactured.

Clean Room

RAININ bioclean tips are manufactured and packaged in a clean room with critical safeguards. A highly efficient HEPA filtration system and a positive pressure environment ensure a contaminant-free atmosphere.

RAININ's new tip manufacturing facility – designed to produce the cleanest tips.



In-house and third-party microbiology testing laboratories guarantee cleanliness.

Testing and Certification of Contaminant-Free Tips

Random sample lots of RAININ's bioclean pre-sterilized and filter tips are routinely tested for contaminants to guarantee cleanliness of the manufacturing process. Individual batches of tips are tested regularly in our in-house microbiology lab to certify the tips free of DNase, RNase, DNA, Pyrogen, and ATP contamination. Filter and presterilized bioclean tips are gamma-irradiated to offer additional assurance that packaged products are free of bio-burden contamination. This tip certification supports FDA good laboratory practices and good manufacturing practice (GLP and GMP) regulations.

bioclean.



Hydrophobic filter eliminates contamination

The hydrophobic filter forms a barrier against aerosols and liquids, eliminating potential sample and pipette cross-contamination that could jeopardize results.

Pure polyethylene, no additives, no contaminants

Filters used in RAININ aerosol-resistant tips are an extremely strong, chemically inert matrix, molded from pure virgin polyethylene that does not flake or shed particles. The average pore size of

20 microns prevents aerosol passage, but does not restrict air flow. RAININ never uses additives, as they could contaminate samples.

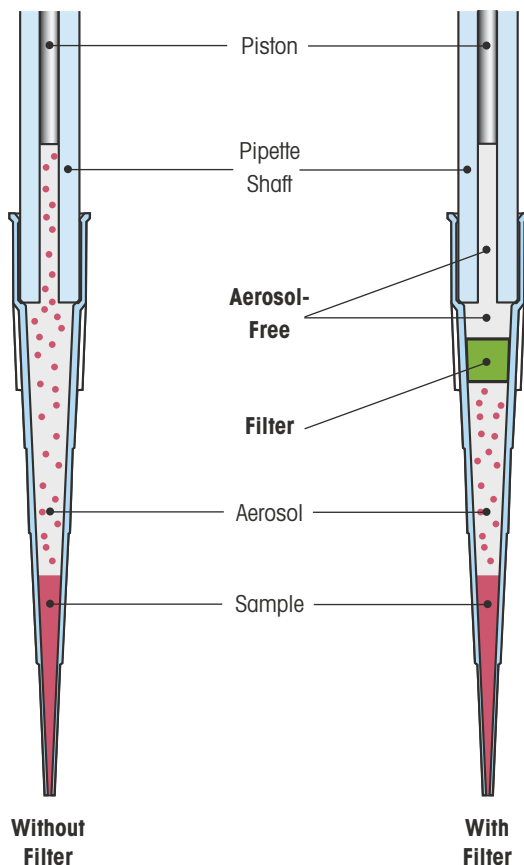
Certification

Filtered and pre-sterilized bioclean tips are gamma-irradiated to ensure the packaged product is free of bio-burden contamination. Each tip lot is process-tested to specifications shown next to the right and labeled "Certified free of DNase, RNase, DNA, Pyrogen, and ATP". A test protocol certificate is included in each package.

bioclean™

Aerosol Resistant Tips The Best you can Get

Proven Protection Against Aerosol Contamination!



Test Protocol

RAININ tips are tested for RNase, DNase, Pyrogen, and ATP. Test results are provided in the following table for each product.

Contaminant	Tested Testing Detection Levels
RNase	$\leq 10^{-9}$ Kunitz units/ μ l
DNase	$\leq 10^{-6}$ Kunitz units/ μ l
DNA	≤ 30 pictograms/ μ l
Pyrogens (LAL test)	0.001 EU/ml
ATP	$< 10^{-12}$ mg/ μ l

Contaminants Levels	Tested Testing Detection
RNase	$\leq 10^{-9}$ Kunitz units/ μ l
DNase	$\leq 10^{-6}$ Kunitz units/ μ l
DNA	≤ 30 pictograms/ μ l
Pyrogens (LAL test)	0.001 EU/ml
ATP	$< 10^{-12}$ mg/ μ l

www.mt.com/rainin

For more information

SpaceSaver™: Stop the Waste, Save the Environment!

The environmental solution for tip-rack refilling that's fast and fun. Best for reducing waste and saving space.

Gain bench space, reduce waste

The entire SpaceSaver system is packaged in a code 1 PET sleeve – the same recyclable material used for plastic soda bottles. Simply recycle at your local recycling center!

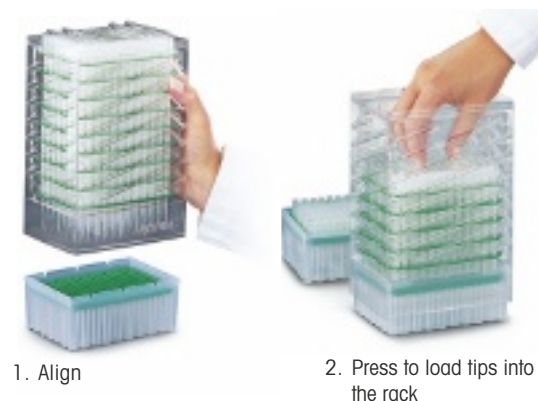
Load 96 tips in seconds!

The sleeve functions as an automatic tip dispenser that aligns and refills an empty rack with 96 tips at a time.

No contamination

SpaceSaver refills are protected from contamination by the outer sleeve, the preloaded rack and lid. After loading, the tips may be autoclaved in the rack.

Fast Loading and no Risk of Contamination



**85% less plastic waste
70% less space**

bioclean.

RAININ
Tips
Accessories

Accessories

Hang-Ups™

Built-in magnets for mounting to ferrous surfaces such as fume hoods. 3 adhesive disks included for mounting to non-ferrous surfaces. 3/pkg. For Pipet-Lite, Pipet-Plus, Pipetman, Microman, and Distriman.



RAININ Carousel Stand

Holds 7 Pipet-Lite, Pipet-Plus, Pipetman, Microman, and Distriman. Rotates for easy access. Sturdy base won't tip over.

Ordering Information

Cat. No.	MT Order No.	Description
HU-M3	17003024	Magnetic Hang-Ups
HU-S3	17004992	Shelf Hang-Ups
CR-7	17001255	Carousel Stand

LTS LiteTouch Tips

in Environmental and User-Friendly tip Packing



SpaceSaver Stacked Refills – fast and easy refill

Cat. No.	Order No.	Description	Max. Capacity	LTS Fits	Type
GPS-L10	17005091	960 tips in 10 refills	20 µl	2, 10, 20	
GPS-L10S	17005090	960 tips in 10 refills	20 µl	2, 10, 20	Presterilized
GPS-L250	17005093	960 tips in 10 refills	200 µl	100, 200	
GPS-L250S	17005092	960 tips in 10 refills	200 µl	100, 200	Presterilized
GPS-L300	17005095	768 tips in 8 refills	300 µl	300	
GPS-L300S	17005094	768 tips in 8 refills	300 µl	300	Presterilized
GPS-L1000	17005089	768 tips in 8 refills	1000 µl	1000	
GPS-L1000S	17005088	768 tips in 8 refills	1000 µl	1000	Presterilized



Green-Pak™ Individual Refills – ideal for filter tip users

Cat. No.	Order No.	Description	Max. Capacity	LTS Fits	Type
GP-L10	17002424	960 tips in 10 refills	20 µl	2, 10, 20	
GP-L10S	17002430	960 tips in 10 refills	20 µl	2, 10, 20	Presterilized
GP-L10F	17002429	960 tips in 10 refills	20 µl	2, 10, 20	Filter, Presterilized
GP-L200F	17002428	960 tips in 10 refills	200 µl	100, 200	Filter, Presterilized
GP-L250	17002425	960 tips in 10 refills	200 µl	100, 200	
GP-L250S	17002431	960 tips in 10 refills	200 µl	100, 200	Presterilized
GP-L1000	17002423	768 tips in 8 refills	1000 µl	1000	
GP-L1000S	17002427	768 tips in 8 refills	1000 µl	1000	Presterilized
GP-L1000F	17002426	768 tips in 8 refills	1000 µl	1000	Filter, Presterilized



Removable-Cover Racks – protect unused tips from contamination

Cat. No.	Order No.	Description	Max. Capacity	LTS Fits	Type
RT-L10	17002930	960 tips in 10 racks	20 µl	2, 10, 20	
RT-L10S	17002929	960 tips in 10 racks	20 µl	2, 10, 20	Presterilized
RT-L10F	17002928	960 tips in 10 racks	20 µl	2, 10, 20	Filter, Presterilized
RT-L200F	17002927	960 tips in 10 racks	200 µl	100, 200	Filter, Presterilized
RT-L250	17002932	960 tips in 10 racks	200 µl	100, 200	
RT-L250S	17002931	960 tips in 10 racks	200 µl	100, 200	Presterilized
RT-L300	17002935	768 tips in 8 racks	300 µl	300	
RT-L300S	17002934	768 tips in 8 racks	300 µl	300	Presterilized
RT-L300F	17002933	768 tips in 8 racks	300 µl	300	Filter, Presterilized
RT-L1000	17002922	768 tips in 8 racks	1000 µl	1000	
RT-L1000S	17002921	768 tips in 8 racks	1000 µl	1000	Presterilized
RT-L1000F	17002920	768 tips in 8 racks	1000 µl	1000	Filter, v
RT-L1200	17006421	768 tips in 8 racks	1200 µl	1200, 1000	
RT-L1200S	17006420	768 tips in 8 racks	1200 µl	1200, 1000	Presterilized
RT-L1200F	17006419	768 tips in 8 racks	1200 µl	1200, 1000	Filter, Presterilized
RT-L2000	17002926	480 tips in 8 racks	2000 µl	2000 µl	
RT-L2000S	17002924	480 tips in 8 racks	2000 µl	2000 µl	Presterilized
RT-L2000F	17002923	480 tips in 8 racks	2000 µl	2000 µl	Filter, v
RT-L5000	17002937	192 tips in 8 racks	5000 µl	5000 µl	
RT-L5000S	17002936	192 tips in 8 racks	5000 µl	5000 µl	Presterilized



StableStak™ – double 96-format ideal for multichannel pipettes

Cat. No.	Order No.	Description	Max. Capacity	LTS Fits	Type
SS-L10	17005873	960 tips in 5 layers	20 µl	2, 10, 20	
SS-L10S	17005872	960 tips in 5 layers	20 µl	2, 10, 20	Presterilized
SS-L250	17005875	960 tips in 5 layers	200 µl	100, 200	
SS-L250S	17005874	960 tips in 5 layers	200 µl	100, 200	Presterilized
SS-L300	17005877	768 tips in 4 layers	300 µl	300	
SS-L300S	17005876	768 tips in 4 layers	300 µl	300	Presterilized
SS-L1000	17007090	768 tips in 4 layers	1000 µl	1000	
SS-L1000S	17007089	768 tips in 4 layers	1000 µl	1000	Presterilized

Pos-D™

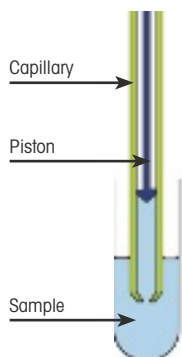
Positive Displacement Pipetting

Problem Liquids Become Problem-Free

Pos-D is specially suited for liquids with high densities, viscosities or vapor pressures. Thanks to the disposable capillaries and pistons, positive displacement absolutely eliminates cross-contamination from aerosols, samples or the pipette itself.

A disposable piston, which moves within a plastic capillary, makes direct contact with the liquid. The positive wiping action of the piston against the capillary wall assures complete dispensing without droplets.

RAININ
Pos-D™ Pipettes
ServiceXXL



No aerosol contamination

The piston makes direct contact with the sample, ensuring reliable accuracy when pipetting liquids with different characteristics than water. Disposable capillaries and pistons ensure absolutely contamination-free pipetting.



Ready to use

There is no need to assemble pistons into capillaries before use due to preassembled covered racks. All capillaries and pistons are presterilized.

RAININ Pos-D™ Specification

Cat. No.	MT Order No.	Volume Range μl	Volume μl	Accuracy		Precision	
				%	μl	%	μl
MR-10	17008575	0.5–10	1	9.0	0.09	3.0	0.03
			5	2.0	0.10	0.6	0.03
			10	1.5	0.15	0.6	0.06
MR-25	17008576	3–25	3	8.3	0.25	2.6	0.08
			10	2.7	0.27	0.8	0.08
			25	1.2	0.30	0.4	0.10
MR-50	17008577	20–50	20	1.7	0.34	1.0	0.20
			50	1.4	0.70	0.6	0.30
MR-100	17008578	10–100	10	5.0	0.50	2.0	0.20
			50	1.5	0.75	0.6	0.30
			100	1.0	1.00	0.4	0.40
MR-250	17008579	50–250	50	3.0	1.50	0.6	0.30
			100	1.7	1.70	0.3	0.30
			250	1.0	2.50	0.2	0.50
MR-1000	17008580	100–1000	100	3.0	3.00	1.6	1.60
			500	1.0	5.00	0.5	2.50
			1000	0.8	8.00	0.4	4.00

Capillaries and Pistons for Pos-D™

Cat. No.	MT Order No.	Volume	Quantity and type
C-10	17008604	10 μl	3 racks of 60 tips each, presterilized
C-25	17008605	25 μl	3 racks of 60 tips each, presterilized
C-50	17008606	50 μl	3 racks of 60 tips each, presterilized
C-100	17008607	100 μl	3 racks of 60 tips each, presterilized
C-250	17008608	250 μl	3 racks of 60 tips each, presterilized
C-1000	17008609	1000 μl	3 racks of 60 tips each, presterilized

Note: For use with Pos-D™ and Gilson Microman pipettes.



Being one of the leading manufacturers and suppliers of precision instruments, we are perfectly equipped and experienced to maintain your pipettes.

Under "ServiceXXL", METTLER TOLEDO provides service support and performance verification, either at your site or in one of our calibration centres – convenient, fast and affordable. Our tailored service packages cover the entire range from the highly efficient "Preventive Maintenance (PM)" option to the all-inclusive "Advanced GxP" solution.

ServiceXXL
Tailored Services

Pipette Service For Optimal Performance



PM	Basic	Standard	Advanced GxP	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	MT Calibration Laboratory ¹⁾
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Customer-Site
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Controlled environment
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Scheduled service
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Adjustment to manufacturer specifications
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	3 months warranty on labor & parts
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Calibration Certificate
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Gravimetric evaluation to manufacturer specs
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ISO8655 accredited certificate ²⁾
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	"As Found" Data (& Pipette History)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	"As Left" Data (& Pipette History)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Internal and external functional testing
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Pipette label with due date
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Replace worn seals, shafts and pistons ³⁾
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Thorough pipette cleaning
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Visual and pressurized leak test

1) Onsite Calibration available for orders > 50 pipettes

2) Additional charges apply

3) Seal every visit. Piston and shaft every 3 years

See price list for further details

The Whole Range of Food and Beverage Titration Analysis

An instrument that is designed and dedicated to your industry has many advantages: everything you need is implemented and everything else you would never use has been left out. This helps you to turn your daily analysis business into easy routines.

General titrators

Entry Level

DL15, DL22 F&B, DL28

DL22 F&B The Food & Beverage Analyzer

The DL22 Food & Beverage Analyzer is a specialized titrator for the food and beverage industry. It includes the methods most commonly used in these industries, with predefined parameters, making life as easy as possible. When you select control parameters for the titration, you need only select from 3 predefined choices.



Select the Right Titration System

Entry Level

The easy start

DL15, DL22 F&B, DL28

Compact entry level titrators for dedicated applications in specific industry segments.

Excellence Line

One Click™ Titration

T50, T70, T90

Modular general titrators providing simple, efficient and secure performance for all titration analysis purposes in a large variety of industry segments.

Automation

Automate your entire titration procedure

Automation

Our range of sample changers and accessories allow complete automation of titration analysis.

Karl Fischer

Water content determination

Karl Fischer Titration

Volumetric and coulometric KF titrators for determining the water content of solids, liquids and gases.



The DL28 is an easy-to-use, compact end-point and equivalence point titrator for the food, water and chemical industries. If needed, with the DL28 you can access all parameters for fine-tuning, increasing flexibility and allowing methods to be further optimized.



www.mt.com/titration

For more information

DL15

Only 3 Steps to Your Result



The DL15 is ideal for many different industries when all that is needed is an endpoint titration or a pH measurement. Most often the DL15 is used to determine the acid and base content, also called acidity and alkalinity.

Functions and specifications

Analysis	DL15	DL22 F&B	DL28
Acid/base, pH	•	•	•
Precipitation (Cl, Br, etc.), Redox, Complexometric, Photometric, pH measurements, Ion selective measurements		•	•
Methods and databases			
Predefined METTLER TOLEDO methods	3	23	31
Memory for own methods	•	•	•
Control and evaluation			
End point titration (EP)	•	•	•
Equivalence point titration (EQP)		•	•
Predefined, selectable parameters (fast, normal, or cautious) for titrant addition and measurement value acquisition	•	•	•
Open Parameters	•		•
Display and user guidance			
Online curve	•	•	•
Alphanumeric entry with special characters, subscripts and superscripts	•	•	•
Documentation			
GLP-conforming printout	•	•	•
Dispensing			
Interchangeable burettes 1, 5, 10, 20 ml	•	•	•
Peripherals			
Parallel printer connection (OKI 4250, hp compatible; PCL3 emulation)	•	•	•
Serial printer connection (RS-P42)	•	•	•
Rondolino automatic titration stand	•	•	•
Part.No.	51109350	51109351	51109352

One Click™ Titration

A new milestone in solutions for simple, efficient and secure titration integrated in the general titrators T50, T70, T90 of the Titration Excellence line. It provides an intuitive and easy operation, maximizes efficiency in daily tasks and eliminates potential operator errors. Together with state-of-the-art interfaces hot Plug and Play functionality for peripherals and the comprehensive method editor, the whole bandwidth from routine to complex titration analyses is mastered with ease.

The Titration Excellence line
T50, T70 and T90

Modular – Perfectly Tailored

The modular platform of the Titration Excellence line guarantees that you are optimally prepared for future challenges. Your investment is protected by the possibility for a tailored upgrade of hardware and software at any time you want.

Simple

The intuitive user guidance of the brilliant color Touch Screen makes the operation very simple. You get familiar with the instrument in a very short time by clever navigation properties, task buttons informing about current analyses and the unique user specific Home Screen.



Efficient

Specific Short Cuts can be set up on the Home Screen for the start of a manual or automated task with just one key-stroke. Sophisticated plug and play make sensors, burettes, burette drives, sample changers, balances etc. immediately ready for use on connection. Errors in the installation are a thing of the past.





Secure

Reliable monitoring of resources, automatic verification of peripherals as Plug & Play sensors and burettes prior to analysis start and a flexible user management maximize security and minimize costly errors.

Safely located in the electrode head, the Sensor Chip of the new pH and metal electrodes stores all relevant sensor data. The sensor is unambiguously recognized by the Excellence titrator. You are always sure that you are using the correct electrode in proper condition.

Implemented Security

The Dual mode allows you to work from the Terminal or from a LabX PC (or from both). Via the network, the analyses results are stored in the LabX database. The integration of the titrators into a network could not be easier thanks to the cost-efficient Ethernet connection. The Titration Excellence line combines security with flexibility.

LabX

Instrument control software for
METTLER TOLEDO
titrators see pages 70–71



www.mt.com/titration

For more information

Simple and Secure

T50 – The first level of Excellence

A ready-to-go-system that has everything required for titration, for users who need a simple, rugged and easily-understandable titrator for performing routine analyses quickly and efficiently, available in two versions:

- T50 M Terminal: Manual titration stand and Terminal as control unit
- T50 A Terminal: Rondolino automated titration stand and Terminal as control unit



The Titration Excellence line
T50, T70 and T90

Flexibility for the Future

T70 – The allrounder

A titrator that offers multitasking, flexible method editing, upgradeability (additional sensor or conductivity card or T90 functionality) and method loops for the integration of various methods into one.

A flexible and expandable system which is easily adaptable to current and future needs.



Unlimited Possibilities

T90 – Highest flexibility

The titrator with parallel titration functionality, conditional method functions ("if ... then" logical conditions to decide how the analysis shall proceed) and Sample Series Sequences to integrate sample series of various methods into one. A titrator providing utmost efficiency, for highest flexibility in method development to solve complex analyses and automation tasks.



Comparison table Titration Excellence line

Features		T50	T70	T90
Analysis type	Acid/base, precipitation (Cl, Br, etc.), redox, complexometric and photometric titrations	Yes	Yes	Yes
	pH stat, pH and ion selective and conductivity direct measurements	Yes	Yes	Yes
	Two-phase titrations	Yes	Yes	Yes
	Conductivity titrations	Yes	Yes	Yes
One Click™ Titration				
Short Cuts per user		12	12	12
Hot Plug and Play	Burette recognition with titrant and titer	Yes	Yes	Yes
	Recognition of Plug & Play sensors	Yes	Yes	Yes
	Burette drive	Yes	Yes	Yes
	Rondo sample changer	Yes	Yes	Yes
	Rondolino autom. titration stand	Yes	Yes	Yes
	USB printer	Yes	Yes	Yes
	Memory Stick	Yes	Yes	Yes
	USB barcode reader	Yes	Yes	Yes
Burette drives	Max. number to dose and titrate	1 (internal)	1 (internal) +3 external	1 (internal) +7 external
	Max. number to dose only	+3 external		
Methods and series	Learn titration for the automatic optimisation of the titration parameters used in the method	Yes	Yes	Yes
	Number of method functions per method	15	60	120
	Number of loops per method: combination of multiple titration in one method	1	3	6
	"if...then" decisions in method	–	–	Yes
	Express samples; can be inserted during the current series	–	Yes	Yes
	Series sequences: combination of individual samples series of different methods	–	–	10
	Number of samples per series	120	120	120
	Pre-programmed METTLER TOLEDO methods for the most important applications	>30	>30	>30
	Max. number of methods	120	120	120
Control and evaluation	End point titration (EP) with dynamic and continuous titrant addition	Yes	Yes	Yes
	Equivalence point titration (EQP) with dynamic or incremental titrant addition	Yes	Yes	Yes
	Five different curve evaluation procedures with EQP titrations: standard, asymmetric, segmented, min, max	Yes	Yes	Yes
	Predefined formulas for the most common calculations as well as freely definable calculation formulas	Yes	Yes	Yes
	Number of calculations per method	6	40	40
Task list	Number of tasks	–	10	30
	Number of tasks running parallel	–	7	8
Online Help		Yes	Yes	Yes
Parallel titration		–	–	Yes
Expandable		–	to T90	–
Sensor Boards	Analog or Conductivity (optional / standard)	1	2/1	3/1
Sensor inputs	Potentiometric (optional / standard)	2/2	4/2	6/2
	Polarized (optional / standard)	1/1	2/1	3/1
	Reference (optional / standard)	1/1	2/1	3/1
	PT1000 (optional / standard)	1/1	2/1	3/1
	Conductivity (optional / standard)	1/0	2/0	3/0
Part No		*T50 M Terminal *T50 A Terminal	*T70 Terminal	*T90 Terminal

- * • T50 M Terminal: 51109001 (T50 main unit including Terminal, 10 mL burette and manual titration stand kit)
 • T50 A Terminal: 51109002 (T50 main unit including Terminal, 10 mL burette and automated titration stand Rondolino)
 • T70 Terminal: 51109011 (T70 main unit including Terminal)
 • T90 Terminal: 51109013 (T90 main unit including Terminal)

Don't forget accessories
 See pages 96–99

Fully Automate Your Entire Titration Processes

Rondo Direct Titration Automation – Highest Level of Automated Flexibility

The system together with the T50, T70 or T90 Excellence titrators for fully automated direct titration of 12, 15, 20 or 30 samples in different sample containers, easily realized and started at a single click.

Automation solutions for titrators
Rondo 60

Rondo 12, for 12 samples in 250 mL MT PP beakers, 400 mL (low form) or 600 mL (tall form) standard glass vessels	Order No. 51108001
Rondo 15, for 15 samples in 150 mL (low form) or 250 mL (tall form) standard glass vessels	51108002
Rondo 20, for 20 samples in 100 mL MT PP beakers	51108003
Rondo 30, for 30 samples in 80 mL MT PP beakers	51108004



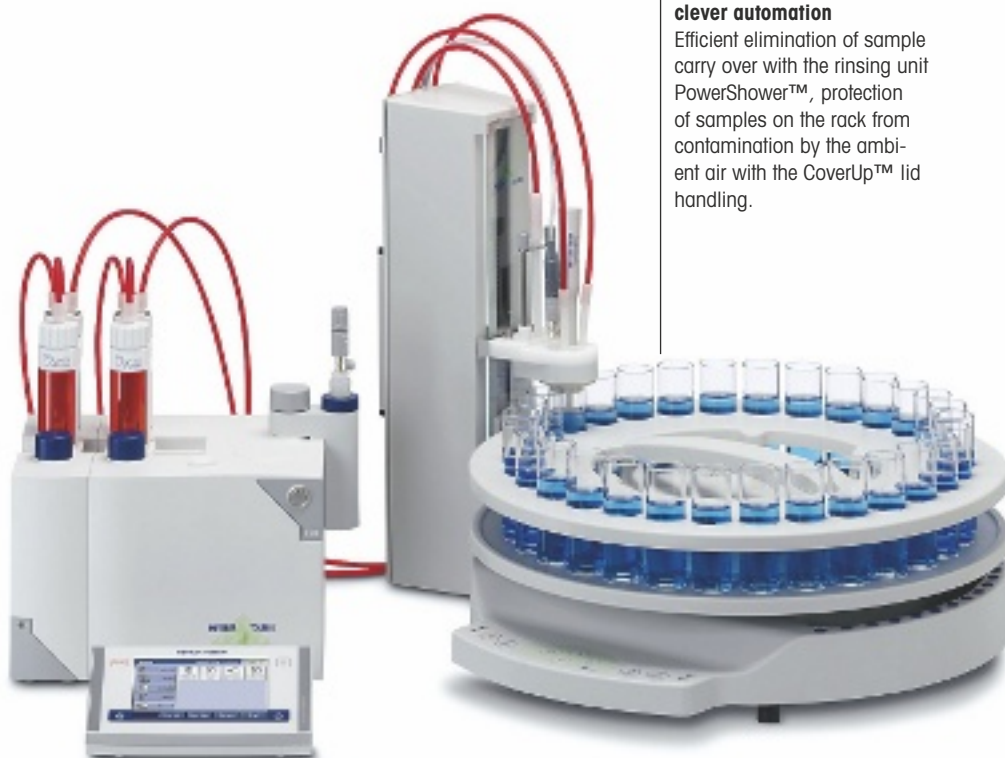
Quality assurance through clever automation

Efficient elimination of sample carry over with the rinsing unit PowerShower™, protection of samples on the rack from contamination by the ambient air with the CoverUp™ lid handling.



Modularity for maximum applications flexibility!

Expandable at any time with intelligent accessories for automatic sample preparation (pumps, DH100 heating system, magnetic stirrer), with a second tower to separate different titrations, with kits for COD and KF titrations – the system grows with your requirements.



Rondo 60 / Rondo 60 plus – Maximum Sample Throughput

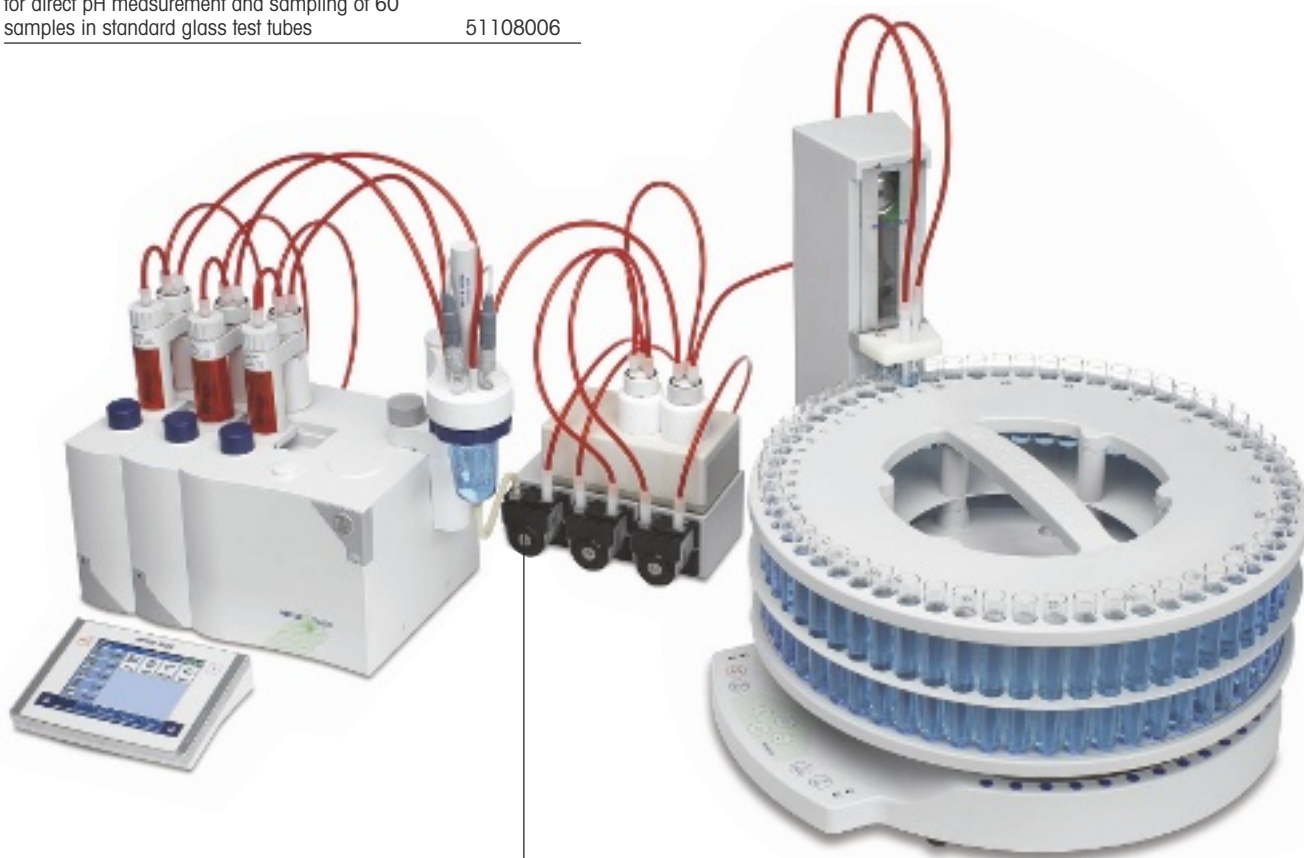
The Rondo system together with the T70 or T90 Excellence titrators for fully automatic sampling and high sample throughput.

Rondo 60, for sampling of 60 samples in standard glass test tubes	Order No. 51108005
Rondo 60 plus, for direct pH measurement and sampling of 60 samples in standard glass test tubes	51108006



Time-optimized processing

Fully automated pH measurements directly in test tubes, rapid and precise aliquoting of sample volumes of 20 to 80 mL, high sample throughput for up to 120 samples distributed on two Rondo sample changers processed in parallel by a T90 titrator.



Security and reliability

Highest degree of accuracy and precision in sample aliquotation via sample loops of up to 10 mL with the SU24 sampling unit.



www.mt.com/titration

For more information

Reliable Karl Fischer Titrators

Quick Start

The KF Multi Media Tutorial-CD and the Hello menu function gets you off to a quick start. Within a short time you will have performed your first analysis.

Your Titrator Learns

The "learn titration" helps you optimise volumetric titrations with the DL31 and DL38. The titrators automatically determine the optimum parameters for the particular application.

Karl Fischer Titrators
DL31/38 KF Volumeters
DL32/39 KF Coulometers

Volumetric titrators

100 ppm to 100% water
Designed to cover a wide range of applications the **DL31** and **DL38** can be used to determine water content in liquids, solids or gases.



Coulometric titrators

1 ppm to 5% water
The **DL32** and **DL39** coulometers are both available with a choice of cell either with or without a diaphragm. This means that you can interchange cells to allow one instrument to cover more applications.

Titrate More Efficiently

Automatic Karl Fischer titrators offer many advantages such as improved reproducibility of results and simplified working procedures. To perform analyses even more efficiently sample changing is automated with the **Stromboli** oven sample changer. It enables up to 15 vials to be analysed unattended plus, as the sample is not in direct contact with the reagents, it is also suitable for products that cause side reactions with Karl Fischer reagents. Stromboli can be used with DL38 and DL39 titrators.



D0308 oven.

If you need to do water determinations in insoluble solids or substances which would react with the Karl Fischer reagents, and are only performing a few, then the **D0308 oven** will give you highly reproducible results. Temperature range: 40 °C to 300 °C.



Stromboli oven sample changer and DL39 coulometer.

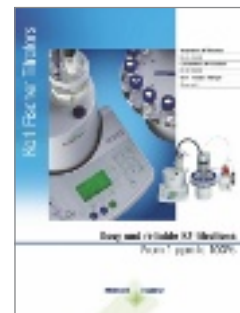
	Stromboli	D0308 oven
Part No	51105200	51371200



LabX

Instrument control software for METTLER TOLEDO titrators see pages 70–71

Don't forget accessories
See pages 96–99



www.mt.com/titration

For more information

	Volumeter		Coulometer			
	DL31	DL38	DL32D*	DL32X*	DL39D*	DL39X*
Application Typical sample quantity	> 50 mg	> 50 mg	> 50 mg	> 50 mg	> 50 mg	> 50 mg
Water content measurement range	>100 ppm	>100 ppm	1 ppm – 5%	1 ppm – 5%	1 ppm – 5%	1 ppm – 5%
Solid, liquid and gaseous samples	•	•	•	•	•	•
Bromine index and bromine number determination		•			•	•
Can be automated with Stromboli		•			•	•
Number of user methods	1	50	1	1	50	50
Predefined Mettler methods		10			5	5
Titrant memory/KF standard memory	10/10	20+5/20	•	•	•	•
Autostart: Automatic start after sample addition		•			•	•
Calculation with external extraction/dissolution		•			•	•
Part No All include cable for PC or printer	51107550	51107551	51108700	51108702	51108701	51108703

* D = Cell with diaphragm
X = Cell without diaphragm

Accessories

Accessories for Excellence Titrators

Description	Part No
Terminal (with connection cable and protective cover)	51109017
Protective cover for terminal	11132570
Conductivity sensor board	51109840
pH sensor board	51109818
Dosing Unit for dosing and titration purposes	51109030
Barcode reader with USB interface and power supply	51191725
T70 → T90 Upgrade set	51109960
External power supply unit	51109806
6-pol CAN cable, 20 cm	51109874
6-pol CAN cable, 60 cm	51109886
USB cable A-A, 180 cm	51191689
Y-cable for simultaneous pump and stirrer connection	51109889
Electrode holder set containing: – Electrode holder, attachment screw, electrode sleeve	51109195
Manual titration stand containing: – Titration stand, attachment screw, spacing, clamping, threaded ring, titration vessel (2 pcs.), stopper set, ground joint adapter, electrode sleeve	51109190
Manual titration kit containing – Manual titration stand, compact stirrer, propeller stirrer (2 pcs.)	51109220
Auto titration kit containing: – Electrode holder set, compact stirrer, propeller stirrer	51109221
Manual titration stand without accessories	51109118
Attachment screw	51109084
Cable Titration Excellence - RS-P26	51190362
Dispensing tube adapter	51109169
Peristaltic pump SP250	51108016
OE06 Auxiliary Output Expander OE06	51108065
DH100 Heating System 110V	51108779
DH100 Heating System 240V	51108780
KF stand (requires tube and adapter) DV705	51107453
Micropropeller stirrer rod	0655073
Propeller stirring rod	101229
Spacer ring for titration arm	023842
Threaded ring for titration arm	025652
Clamping ring for titration arm	025653
Electrode holder (when not in use)	025654
Bottle rack for 2x 1 litre bottles	51107065
Accessories for Rondo sample changer	
Rondo 30 upgrade set	51108225
Rondo 60 upgrade set	51108017
Rondo 60 plus upgrade set	51108112
Rondo COD set	51108014
Rondo KF set	51108015
CoverUp™ lid handling device	51108470
SU24 Sampling Unit	51108018
20 mL aliquoting beaker	51108314
80 mL aliquoting beaker	51108161

Accessories for DL31 and DL38

Accessories for DL31 and DL38	Part No
Amber glass bottle	071296
Cover: 3 hole adapter, ST10 opening	51107462
Drying tube holder	023915
Drying tube with cover	023961
External power supply	51107777
Fastener screw (for titration vessel)	51107474
Gasket for screw-cap, 23937	023981
Magnetic stir bar (V1.8)	51191159
Magnetic stirrer (V1.8)	51108750
Magnetic stirring bar (V1.2)	51107607
Magnetic stirring motor (V1.2)	51107564
Molecular sieve, 3Å (250 g)	071478
O-Ring for screw caps (4/pk)	51107496
O-Ring for titration head	51190366
Protection cover for keypad (3/pk)	51107666
Pump button	51107600
Pump unit (solvent)	51107479
SC-LEMO electrode cable, 100 cm	089602
SC-LEMO electrode cable, 60 cm	089601
Screw cap for solvent and waste	023937
Seal for drying tube	51107492
Septum stoppers ST10 (10/pk)	023949
Septum stoppers ST24 (10/pk)	023950
Silicon tubing, 133 mm	51107480
Silicon tubing, 450 mm	51107490
Stopper adapter, ST10, ST7.5	023982
Stopper set for three-hole adapter (ST10, ST7.5, 6 needle stoppers)	025883
Stopper ST7.5 (5/pk)	023452
Suction delivery tubing	51107481
Thermostatable beaker, 150 mL (for DV705, DL31/38)	51107497
Threaded ring for titration head	51107459
Titration vessel (250 mL)	51107463
Visco-spoon	51107668
Homogenizers	
(Powders, pastes, lotions)	
Accessories	Part No
Homogenizer adapter (12 mm) for Kinematica (Polytron) homogenizers	51107534
Homogenizer adapter (18 mm) for IKA homogenizers	51107409
Required to complete all homogenizer kits	
Accessories	Part No
TTL-I/O TBox DR42	51107420
TTL interface cable	51190589
Power cable	089405

Accessories for DL32/39

Accessories for DL32/39	Part No
Titration vessel (glass)	51108732
1L brown glass bottle	071296
60 cm electrode cable	089601
Aspiration device	51108745
Bottle of molecular sieve	071478
Coulometric cell with diaphragm	51108751
Coulometric cell without diaphragm	51108753
DM143-SC electrode, needs cable	51107699
Drying tubes with cover	023961
English memo card	51710113
English operating Instructions	51710108
External power supply	51107777
Fastener screw for DL32/39	51108752
Gasket for bottles	023981
Generator cable	51107830
Glass drying tube, straight	51108733
Magnetic stirrer bar for DL32/DL39	51191159
Magnetic stirrer for DL32/DL39	51108750
Pump button (with pictogram)	51107600
Pump unit	51107479
Screw cap	023937
Seal (for drying tube)	51107492
Septum, 12/pk	51108740
Silicon grease	071300
Silicon suction tubing 450 mm	51107490
Teflon stopper with septum	51108741
Teflon tubing, 800 mm	023936



Accessories for Stromboli

Accessories for Stromboli	Part No
Gas drying unit	51108660
Stromboli tubing set for gas drying unit	51108666
Sample vials (glass), 42/pk	51108691
Rubber seals for vials, 42/pk	51108692
Sealing discs for vials, 144/pk	51108693
Drying tube, curved	51108639
Purge gas tube	51108837
Teflon stopper	51108668
Gas inlet	51108669
Set of glass tubing	51108695
TTL/IO connection cable	51190589
Operating instructions, Stromboli V.2.0	51710322
Air pump box	51108673
Stop valve	51108688
Purge gas tube heater	51108836
Adapter for DL39 stopper	51108761
Aluminium inserts for drift determination	51105246

Accessories for D0308

Accessories for D0308	Part No
Sample boat (glass)	51108657
Gas drying unit and flow meter (needs tubes)	51108660
Guide rod for sample boat	51371101
Screw cap GL37 for sample tube	51191129
Stop cock	51191130
Aluminium inserts for sample boat (50/pk)	51108649
Furnace sample tube	51371206
Operating instructions (E, F, G)	51710380
Tube set	51108676
Gas outlet tubing	51108837
Silicon stopper ST14.5 (10/pk)	023276
Three-hole adapter with plug stoppers, for volumetric titrations	023982
Spare fuses (3/pk)	54286
Air pump box	51108670
Drying tube with three-way tap	105071
Silicon grease	071300

Accessories

Electrodes



Electrode cables	Part No
SC-LEMO 60 cm cable for Plug & Play and classical sensors	00089601
SC-LEMO 100 cm cable for Plug & Play and classical sensors	00089602
SC-LEMO 160 cm cable for Plug & Play and classical sensors	51108034
Cable MultiPin™ - Lemo/Pt1000 70 cm for DG117-Water/DGi117-Water	51109296
Cable MultiPin™ - Lemo/Pt1000 100 cm for DG117-Water/DGi117-Water	51109297
Y-Cable (connection of the DP5 to the power supply and the titrator)	51109905
Spare parts for electrodes	Part No
SC-DIN 65 cm cable for DL2X	089603
SC-DIN 100 cm cable for DL2X	089604
SC-Banana for DM143 to DL18/35	51108061
ISE electrode SC-LEMO cable (banana connector)	51089954
Cable LEMO to 2 banana connectors DK102A-DIN	025914
Adapter, DIN to LEMO	089600
Mirror cap replacement for DP550/660/DP5 (complete)	022684
DS500 membrane kit	51107669
DS800-TwoPhase electrolyte solution	51109452
DS800-Two Phase Emulsifier	51109453
Plug & Play combined pH glass electrodes with Sensor Chip	Part No
DGi101-SC pH micro-electrode. For small titration vessels and Rondo 30 sample changer. For aqueous solutions.	51109507
DGi102-Mini pH micro-electrode. For small titration vessels and Rondo 30 sample changer. For aqueous solutions	51109508
DGi111-SC pH glass electrode	51109500
DGi112-Pro pH glass electrode. With moveable sleeve diaphragm - for critical samples	51109501
DGi113-SC pH glass electrode. With moveable sleeve diaphragm - non-aqueous titrations	51109502
DGi114-SC pH glass electrode. With moveable sleeve diaphragm. For aqueous solutions.	51109503
DGi115-SC pH glass electrode with sleeve diaphragm.	51109504
DGi116-Solvent pH glass electrode with moveable sleeve junction for non-aqueous media	51109505
DGi117-Water pH glass electrode with integrated temperature sensor.	51109506
Classical combined pH glass electrodes	Part No
DG111-SC pH glass electrode	00089596
DG113-SC pH glass electrode. With moveable sleeve diaphragm - non-aqueous titrations	00089632
DG115-SC pH glass electrode with sleeve diaphragm.	00089806
Classical half cell electrode	Part No
DG300-SC Half cell pH electrode in conjunction with reference electrode DX200	51109286

Classical reference electrodes for pH/ISE/Tenside half cell electrodes	Part No
DX200 glass reference electrode	51089935
DX202-SC plastic reference electrode	51109295
Plug & Play combined metal electrodes with Sensor Chip	Part No
DMi101-Mini semi micro platinum ring electrode. Ceramic frit for argentometric titrations – for small sample volumes and Rondo 30 sample changer	51109523
DMi102-SC semi micro silver ring electrode. Ceramic frit for argentometric titrations – for small sample volumes and Rondo 30 sample changer	51109533
DMi140-SC platinum ring electrode. For redox titrations (3M KCl, saturated with AgCl)	51109520
DMi141-SC silver ring electrode. For argentometric titrations (1M KNO ₃)	51109530
DMi144-SC platinum ring electrode. For redox titrations on the Rondo 20 COD rack	51109521
DMi145-SC silver ring electrode with a movable easy-to-clean sleeve junction for argentometric titrations - dirty or viscous samples.	51109531
DMi147-SC platinum ring electrode. For redox titrations without changing pH value. pH glass as reference element without ceramic junction.	51109522
DMi148-SC silver ring electrode. For argentometric titrations without changing pH value. pH glass as reference element without ceramic junction.	51109532
Classical metal electrodes	Part No
DM140-SC combined platinum ring electrode. For redox titrations (3M KCl, saturated with AgCl)	00089598
DM141-SC combined silver ring electrode. For argentometric titrations (1M KNO ₃)	00089599
DM143-SC double-pin platinum electrode	51107699
DM405-SC combined Ag ₂ S-sulfidized silver billet electrode with annular ceramic junction for argentometric titrations.	51109291
Photometric sensors	Part No
Phototrode DP5 5 selectable wave lengths 520nm, 555nm, 590nm 620nm, 660nm. Includes LEMO connection cable	51109300
Adapter for use with DL21/25	51109907
Temperature probes	Part No
DT1000 – PT 1000	51109828
DT1000 adapter for Rondolino and Rondo	51108032
Surfactant electrodes	Part No
DS500 for aqueous surfactant titrations	51107670
DS800-TwoPhase for two-phase surfactant titrations	51109540
Conductivity sensors	Part No
InLab717 glass 4 pole cell, 10µS/cm...500mS/cm, for conductivity titrations	51302401
InLab718 glass 2 pole cell, 0.1...200µS/cm, for low-conductivity titrations	51340266



Burettes

DV1000 burettes

	Part No
1 ml burette DV1001 with RF-ID memory chip for plug and play installation	51107503
5 ml burette DV1005 with RF-ID memory chip for plug and play installation	51107500
10 ml burette DV1010 with RF-ID memory chip for plug and play installation	51107501
20 ml burette DV1020 with RF-ID memory chip for plug and play installation	51107502
Burette housing with RF-ID memory chip	51109117

Accessories for burettes

	Part No
Centering ring 5 mL	51107519
Centering ring 10 mL	51107520
Centering ring 20 mL	51107521
Glass cylinder 1 mL	51107533
Glass cylinder 5 mL	51107100
Glass cylinder 10 mL	51107101
Glass cylinder 20 mL	51107102
Piston 1 mL	51107535
Piston 5 mL	51107115
Piston 10 mL	51107116
Piston 20 mL	51107117
Locking screw	51107518
Operating instructions	51709784
Stopcock/Ceramic valve disk for reagents with tendency for crystallisation	51107525
Stopcock/Teflon valve (standard)	51107537
Amber glass bottle, 1L, for reagent, solvent and waste	071296
Burette holder	023645
Connection tubing	51107129
Dispensing tube with siphon tip (70 cm)	025687
Dispensing tube with siphon tip (100 cm)	025961
Drying tube with cover	023961
Drying tube holder	023915
Gasket for screw-caps, 23937	023981
Light protection tube (UV)	023644
Molecular sieve, 3Å, 250 g	071478
Set of labels	51107506
Anti-diffusion tips (5/pk)	023240
Stopper ST 14.5	023646
Suction tube (83 cm)	025688
Adapter for Merck bottles (40 mm/S40)	023774
Tip holder for burette tip	023960

Titration Beakers

	Part No
Plastic beakers, 100 mL, 1400/pk	101974
Plastic beakers, 250 mL, 500/pk	023829
Plastic beakers, 100 mL,	
Polypropylene beakers, red, 100 mL, 1400/pk	025777
Two-phase beaker for surfactant titrations	51107655
Covers for 80 mL beakers, 16/pk	101448
Glass beakers, 80 mL, 20/pk	101446
Plastic beakers 80 mL for Rondo 30, Set a 30	51108030
Glass beaker, 150 mL	023917
(DL18/35 requires #23901 fastener ring)	
Glass beaker, 250 mL (DL18/35 requires #23902 fastener ring)	023918
Glass beakers, 250 mL, 10/pk (Not for ST20)	023515
Glass beaker, for sample vol. 10–20 mL	023516
Thermostatable glass beaker, 80 mL (Not for DL18/35/31/38)	023517
Thermostatable glass beaker, 150 mL for DV705/DL31/38	51107497
Thermostatable glass beaker, 150 mL for DL18/35. Includes fastener ring #23902	023976
Titration vessel, 250 mL total, 180 mL usable volume for DV705/DL31/38	51107463

Sample Handling Accessories

Adapters	Part No
Visco-spoon	51107668

Bottle Top Adapters

	Part No
Diameter 40.5 mm; slope 3.5 mm (Germany/Merck)	023774
Diameter 37.5 mm; slope 5 mm (USA)	023787

Printers

	Part No
RS-P42 alphanumeric printer. Cables not included	00229265
Cable-RS-P42 to DL31/32/38/39/15/22/28	51190362
Paper for GA42 and RS-P42 (Set of 5)	072456
Ribbon cartridge for GA42 and RS-P42 (Set of 5)	065975
RS-P26 alphanumeric printer	12120788
Cable-RS-P26 to T50, T70, T90	51190362
Paper roll for RS-P26 (Set of 2)	12120799
Ribbon cartridge for RS-P26	12120798
OKI B4250 commercial printer (cables included with Titrator) EU version	51191608
US Version	51191609



www.mt.com/titration

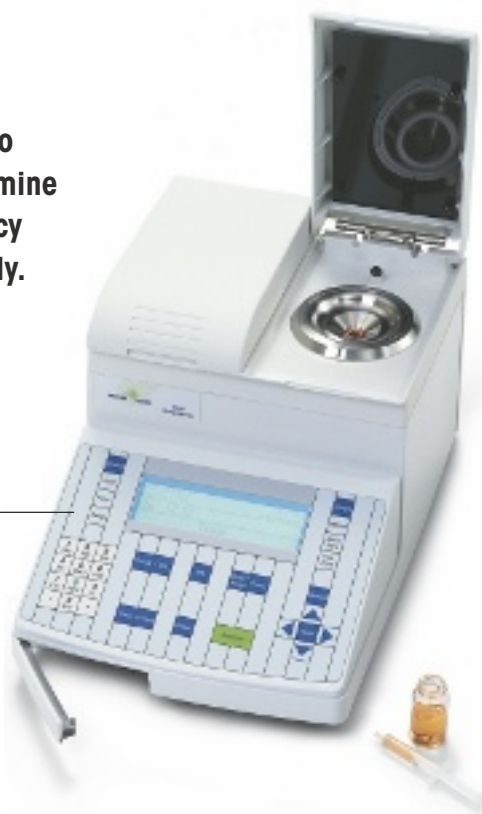
For more information

Density and Refractive Index Simultaneously or one at a Time

The days of manual determinations with pycnometers, hydrometers and optical Abbe refractometers belong to the past. METTLER TOLEDO's digital instruments determine density and refractive index simply, with great accuracy and, depending on the instrument, even simultaneously.

RE Refractometers nD, Brix and Concentrations

Place the sample in the cell and press the button – you no longer need to rely on error-prone readings of dark/bright transitions when doing refractive index measurements with the RE.



Select the Right Density- or Refractometer

Benchtop

Rapid and reliable measurement

DE/RE Line

Our DE density meters and RE refractometers are fast, accurate and reliable and feature built-in thermostats.

Combined

Dual determination speed analysis

DR Line

The compact DR combined meters are ideal for the simultaneous determination of density and refractive index.

Automation

Improve productivity automatically

SC1/SC30/LiQC

Save time and money with our automation solutions for benchtop density meters, refractometers and combined instruments.

Portable

Measurements on the move

Densito/Refracto

Our PortableLab™ series of hand-held instruments includes the Densito density meter and the Refracto refractometers for use on site or in the field. Both conform to GLP.

QuickBrix

The pocket sized QuickBrix™ refractometers measure Brix precisely and reliably.

DE Density Meters

Density and Related Values

– Quick and Easy

The DE density meters allow rapid density determinations of liquid samples and display the results directly as density, specific gravity or in other units such as Brix and API degrees. The DA-100M density meter is a compact three-decimal place density meter, equipped with a Peltier thermostat and an air pump to dry the measuring cell.



DeltaRange™ density measuring cells

Five decimal place measuring accuracy is not usually needed over the entire measuring range, as most organic solvents and alcohol solutions have a density lower than 1 g/cm³. With the new DE45 DeltaRange™ Density Meter and the DR45 DeltaRange™ Combined Meter, METTLER TOLEDO now offers tailor made solutions for such applications – at best value prices.

www.mt.com/density

For more Information



DR Combined Meter

Two Instruments in One

Simultaneous determination of density and refractive index: measuring both values with a DR combined meter increases speed, simplifies procedures and enhances the accuracy of results.

Benchtop density meters, refractometers and combined meters

- Built-in Peltier thermostat
- Two operator levels prevent unauthorised modifications of measuring methods and instrument setting
- Bar code reader for instant input of user name and sample ID

Recommended:
Professional
service contract,
See pages 6–11

Density measurement

Model	Accuracy	Repeatability	Temp range	Part No
DA-100M	0.001 g/cm ³	0.001 g/cm ³	15–40 °C	51320001
DE40	0.0001 g/cm ³	0.0001 g/cm ³	4–90 °C	51320300
DE45 DeltaRange™	0.00002 ¹⁾ / 0.00005 g/cm ³	0.00001 g/cm ³	4–90 °C	51320360
DE51	0.00002 g/cm ³	0.00001 g/cm ³	4–70 °C	51320302

Refractive index measurement

RE40D	0.0001 (nD)	0.0001 (nD)	15–70 °C	51320403
RE50	0.00005 (nD)	0.00001 (nD)	15–50 °C	51320401

Density and refractive index measurement

DR40 ²⁾	0.00005 g/cm ³ 0.0001 (nD)	0.00001 g/cm ³ 0.0001 (nD)	15–50 °C	51320501
DR45 DeltaRange™	0.00002 ¹⁾ / 0.00005 g/cm ³ 0.00005 (nD)	0.00001 g/cm ³ 0.00001 (nD)	15–50 °C	51320502

¹⁾ in the range 0–1 g/cm³ / 15–20 °C

²⁾ requires an SC1 or SC30 sample delivery and cleaning unit

Automation

Highly Reliable with Minimal Effort

High resolution instruments alone do not guarantee accurate measurements because the results can still be influenced by the operator or by sample-related effects. Automation is thus not only the best guarantee for a high sample throughput and fast payback, it also helps to prevent measurement errors.



SC1 and SC30 Less Work, Greater Certainty

The SC1 and SC30 sample delivery and cleaning units reduce the work involved in the determination of density and refractive index and enable the measuring instrument to automatically detect the most frequent sources of error in density and refractive index measurements.

Benefits:

- More reliable results.
- Completely automatic measuring cycle.
- Only small sample volume required (3 ml for DE/RE, 6 mL for DR).
- Automatic sample recovery.
- Suitable for highly viscous or sticky samples.

Heating Options Even for Samples Which Are Solid at Ambient Temperature

In cases where the samples are solid at ambient temperature, the SC1 and SC30 can be equipped with a heating unit to allow density testing to be performed.

For maximum performance, the SC1 and SC30 can be fitted with a Power Purge Unit (PPU). This external pump ensures shortest cycle times, as it considerably reduces the time required for rinsing and purging.



LiQC Systems Smooth Automation in Multi-Parameter Analyses



LabX® direct density and refractometry

PC software designed to provide users with easy data transfer to a personal computer: LabX direct supports the download of the entire results data memory of the Refracto and Densito portable meters, and captures results of measurements, adjustments and instrument performance checks obtained with DE, RE and DR bench top instruments. The data can directly be dumped into any Windows® application such as Microsoft Excel® and also be stored as ASCII text files.

LiQC revolutionizes quality control checks of liquid samples by its smooth and seamless approach to automation: It increases productivity and data security, as it automatically eliminates non trustworthy measuring results, automatically checks whether results are within tolerances and allows simple integration into any laboratory Information and Management System. LiQC is available in two versions:

LiQC Standard enables your personal computer to act as a powerful remote control and data logging system for automated measuring systems based on a DE Density Meter, an RE Refractometer or a DR Combined Meter. LiQC Standard comes with a fingerprint reader for biometric user identification. This patented technology eliminates cumbersome user name and password systems and increases data and system security.

LiQC Multi Device allows the additional connection of a METTLER TOLEDO SevenEasy™ pH or conductivity meter and/or a color measuring instrument. LiQC MultiDevice makes it even possible to combine a DE Density Meter and an RE Refractometer in one automated measuring system. Furthermore, complete barcode functionality facilitates automatic sample data entry and product based method selection. The SC30 sample changer can even be fitted with an SC30BC barcode scanner which scans sample information directly from barcode labels on the sample vials – fully automatic!

www.mt.com/density

For more Information

Traceable Standards For Improved Data Security

The new combined liquid standard reference materials from **METTLER TOLEDO** reduce uncertainty, eliminate time-consuming and error-prone sample transfer and facilitate fully automatic performance verification.



No manual handling –

No errors due to contamination

The combined standard reference material comes in vials suitable to be used directly on the SC1 and SC30 automation units – no syringe required. This not only reduces effort but also eliminates errors due to contamination.

Two parameters in one –

Fewer standard reference materials required

The four new combined standard reference substances are certified for density value and refractive index at three different temperatures. They can therefore be used to certify or verify both, density and refractive index instruments. Users of DR Combined Meters benefit greatly as they can verify the two measuring cells in one simple step.

Barcode certificates –

Simple and effective verification procedure

All the information contained in the certificates of the combined standard reference material is coded in one single barcode. Users of LiQC systems simply scan this barcode and let the system perform the subsequent processes – no need to input data manually!

Standard Reference Material	Density [g/cm ³] at 20 °C	Uncertainty ¹⁾ [g/cm ³]	Refractive index nD at 20 °C	Uncertainty ¹⁾ nD	Certified at [°C]	Quantity	Part No
Water	0.998..	0.00003	1.333..	0.00002	15,20,25	9 mL	51338010
Dodecane	0.749..	0.00003	1.422..	0.00002	15,20,25	9 mL	51338012
2,4-dichlorotoluene	1.250..	0.00003	1.546..	0.00002	15,20,25	9 mL	51338013
1-bromonaphthalene	1.481..	0.00003	1.658..	0.00002	15,20,25	9 mL	51338014
Water	0.998..	0.00003	–	–	20	2 x 10 mL	51338011
Water	0.998..	0.001	–	–	20	10 x 3 mL	51325005

¹⁾ Typical values. May change from lot to lot without prior notice.

Accessories



Printer, barcode reader and software for DE/RE/DR

RS-P42 dot matrix printer	00229265
Cable for RS-P42 dot matrix printer and connection to PC (DE/RE/DR)	51190362
Heron-G D130 Barcode Reader (also suitable for LiQC Multi Device)	21901297
Cable for Heron-G D130 Barcode Reader	21901340
LabX® direct density and refractometry software	51324103

LiQC System for DE / RE and DR

LiQC Standard (Software, fingerprint reader)	51327317
LiQC MultiDevice (Software, Fingerprint reader, LiQC Device Controller, connecting cables)	51327315
SB30BC Barcode Reader for automatic operation with SC30	51327316
SevenEasy™ S20 pH Meter	51302803
pH Flowthrough cell (complete, incl. pH electrode, cables and tubing)	51327305
pH Electrode (replacement)	59902917
SevenEasy™ Conductivity Meter	51302805
Conductivity connection kit (complete, incl. probe, cables and tubing)	51327404
Connection kit for Lovibond colorimeter (complete, incl. flow cuvette, cables and tubing)	51327406

Accessories for DA-100M density meter

Automatic sampling unit ASU-100	51321400
RS-P42 dot matrix printer	00229265
Cable for RS-P42 printer (DA-100M)	51328094

Accessories for DE40/45/51 density meters

Protective cover (3 pcs)	51107667
Purge pump (required if used without PSU-DE, SC1 or SC30)	51321502
PSU-DE sampling pump (to be installed in the instrument) suitable for low viscous samples only	51321700

Accessories for RE40D/RE50 refractometers

Protective cover (3 pcs)	51107667
Vapor proof lid (for volatile samples)	51322114

Accessories for SC1/SC30 sample delivery and cleaning units

PPU Power Purge Unit (for faster cleaning and drying of measuring cells)	51327365
SC-RE connection kit (required for connection of RE refractometers)	51322068
Sampling needle made of Hastelloy C22 (for highly aggressive samples)	51327323
Electrical heating for SC1 (suitable for DE only)	51326301
Electrical heating for SC30 (suitable for DE only)	51327300
Sample vials 20 mL (148 pcs, vials only)	51322310
Screw caps with seal (148 pcs)	51322319
Sample vials 9 mL (1860 pcs)	51322312
Sample vials 6 mL (1860 pcs)	51322313
Adapters for small sample vials (30 pcs) ¹⁾	51322304
Seals for small sample vials (2000 pcs) ¹⁾	51322305
Screw caps for small sample vials (3500 pcs)	51322306

¹⁾ required for 6 mL and 9 mL sample vials

Measure Anywhere Just Like in the Laboratory

Despite their compact size, the portable density meters and refractometers offer the features you would expect from a bench-top instrument: A wide array of configuration possibilities for perfect adaptation to your application, a minimum of keystrokes required to execute measurements and even the possibility to transfer the measured data to a printer or personal computer.

Portable meters
Densito, Refracto

The PortableLab™ Open the Lid and You Open the Lab



Densito and Refracto are delivered in practical carrying cases which contain everything needed to do the measurements. Our portable instruments offer all the features required for successful on-site measurements:

- Automatic temperature compensation
- Direct display of the result in the desired unit
- Data capture via printer or PC – LabX® direct is included in the standard delivery
- Built-in clock for full GLP compliance

Case shown with both Densito and Refracto



Densito 30PX The Hand-Held Density Pro

Densito is easy to use – simply immerse the sampling tube into the product and pull the trigger. It performs automatic temperature compensation and provides results in seconds – in units chosen by you.



Refracto 30PX/30GS Reliable Refractive Index

Refracto is quick and error free – just place a few drops of sample on to the cell or immerse the cell into the sample, push the button and in seconds you receive a refractive index reading with temperature displayed digitally. The 30GS boasts a wider measuring range and quicker temperature response than the 30PX.



Quick-Brix – Compact and rugged

Be it in the vineyard, near the production line or in the goods reception: The Quick-Brix™ refractometers are splash proof, fit into any coat pocket and are thus ideal tools for quick quality control checks wherever you need to perform them.

Portable density meter

Model	Measuring range	Accuracy	Temperature range	Part No
Densito 30PX	0 to 2 g/cm ³	0.001 g/cm ³	5–40 °C	51324450

Portable refractometer

Refracto 30PX	1.32 to 1.50 (nD) 0 to 85% Brix	0.0005 (nD) 0.1% Brix	10–40 °C	51324650
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Portable high-end refractometer

Refracto 30GS	1.32 to 1.65 (nD) 0 to 85% Brix	0.0005 (nD) 0.1% Brix	10–40 °C	51324660
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Accessories

Infrared adapter (data transmission to PC or printer)	51325006
Adapter for external syringe (Densito)	51324402
Cleaning tissues, set of 10	51325003
Density water standards, 10 sachets	51325005

Portable Brix meter	Measuring range	Resolution	Accuracy	Part No
Quick-Brix™ 60	0 to 60% Brix	0.1% Brix	0.2% Brix	51324800
Quick-Brix™ 90	0 to 90% Brix	0.1% Brix	0.1% Brix	51324900



www.mt.com/density

For more Information

Recommended:
Professional service contract,
See pages 6–11

FiveEasy™ and FiveGo™

Introduction to pH Measurement

Compact bench meters and splash-protected portable meters for measuring pH and conductivity. Easiest operation through self-explanatory keypad and large display. Robust electrodes and helpful accessories included in the kit versions of the meters.

pH made easy – “Read” starts a measurement, “Cal” a calibration. Automatic endpoint recognition, automatic temperature compensation and calibration with automatic buffer recognition reduce possible user errors to a minimum.

Ergonomic design – The compact bench meters require very little space; the portable design is also ideal for users with smaller hands and offer IP54 protection against dust and water ingress.

**FiveEasy™
FiveGo™**
Benchtop- and
Portable pH &
conductivity



At a glance

Besides the simultaneous display of measured value and temperature, various helpful icons inform you immediately about the condition of your electrode and whether a measurement is in progress or whether the reading is already stable.



Select the Right Equipment for pH, Ion, Conductivity or ISFET Measurement

Benchtop

pH/cond/ion/ISFET

SevenEasy™, SevenMulti™, FiveEasy™

This series includes standard and advanced meters to meet every application need. Plus we offer a wide range of electrodes, buffers and accessories.

Portable

pH/cond/DO/ion Portable measurements with SevenGo™, FiveGo™

Our range of hand-held portable meters transports the consistency and precision of laboratory instruments to the field.



Useful accessories such as electrode clip, wrist strap and a laminated "Quick Guide" are included with every meter. The fieldkit version comes additionally with a handy carry bag.



FiveEasy™

	FG2 FiveGo™ pH * FE20 FiveEasy™ pH *	FG3 FiveGo™ conductivity FE30 FiveEasy™ conductivity
Measuring range	0.00...14.00 pH -1999...1999 mV 0 °C...100 °C (32 °F...212 °F)	0.0 µS/cm...199.9 mS/cm 0.1 mg/L...199.9 g/L (TDS) 0.00...19.99 psu (salinity) 0 °C...100 °C (32 °F...212 °F)
Resolution	0.01 pH 1 mV 0.1 °C	Automatic range 0.00...19.99 psu 0.1 °C
Error limits	± 0.01 pH ± 1 mV ± 0.5 °C	± 0.5 % of the measured value ± 0.3 °C
Calibration	2 points 3 predefined buffer groups	1 point 3 predefined standards
Memory	30 measurements (FiveGo™) Current calibration	30 measurements (FiveGo™) Current calibration
Power supply	FiveGo™ 4 x AAA > 500 operating hours FiveEasy™ 100-240 V / 50-60 Hz, 9V DC	4 x AAA > 250 operating hours 100-240 V / 50-60 Hz, 9V DC
Size/weight	FiveGo™ 169 x 82 x 36 mm / 0.18 kg (without batteries) FiveEasy™ 200 x 175 x 52 mm / 0.6 kg	169 x 82 x 36 mm / 0.18 (without batteries) 200 x 175 x 52 mm / 0.6 kg
Display	Liquid crystal	Liquid crystal
Input	BNC, impedance > 10e + 12 Ω Cinch, NTC 30 kΩ	Mini-DIN
Temperature compensation	ATC & MTC	Linear: 0.00 %/°C...10.00 %/°C
Reference temperature		20 & 25 °C
IP protection (FiveGo™)	IP54	IP54
Housing	ABS/PC reinforced	ABS/PC reinforced



www.mt.com/pHlab

For more information

SevenEasy™

The Little Wonder

- Intuitive operation for everyday work in the laboratory
- Improved quality of measurements through automatic functions
- Comprehensive service package including IQ/OQ/PQ
- Excellent reproducibility due to improved sensor technology

SevenEasy™
Benchtop pH &
conductivity

SevenEasy™ pH (S20) and SevenEasy™ Conductivity (S30) are intuitive, easy to use and ideal for numerous applications. They incorporate state-of-the-art automatic functions and an integrated interface for data exchange.

"Easy" – Obviously so easy

The clear, high-contrast display with its large digits allows you to read measurement results and other relevant information easily. Neither a program menu nor operating instructions are needed.

Automatic buffer recognition

With this function you can choose the order in which you use your pH buffers for regular calibration. This speeds up calibration procedures and eliminates unnecessary error messages. Choose a 1-, 2- or 3-point calibration.

Mobility

Both SevenEasy™ – pH and Conductivity – can be connected to the line voltage or operated from batteries. Make SevenEasy™ independent of line power by inserting four AA batteries!

Electrode condition

You see right away whether your electrode is in good condition. Does it have to be cleaned or replaced? A pictogram immediately puts you in the picture.

Self-diagnosis

The S30 also has a self-diagnostic test program, just like the SevenEasy™ S20. The user can check the hard- and software using an interactive dialog with the instrument. This is your personal guarantee that everything is working properly.

Four measurement modes

The SevenEasy™ S30 offers you all the different measurement modes and units: conductivity, TDS, resistivity and salinity. This eliminates the need for any manual calculations.



Seven Service – Electrochemical instruments at your service

Regular equipment qualification increases the uptime and accuracy of your instrument over many years. More information on Services can be found at www.mt.com/ServiceXXL



SevenEasy™

pH and conductivity meters

- Portable or benchtop use
- Self-diagnostic test
- Auto buffer recognition
- 3 point calibration (pH)
- Editable cell constant (cond.)
- Resolution to 2 decimal places
- Auto temp. compensation (can be switched off in cond.)
- Stand-alone electrode arm



Both S20 and S30 come with RS232C interface for connection to PC/printer.

Model	Parameters	Range	Probe InLab®	Part No
S20	pH/mV/redox/°C	0.00...14.00 pH	none	51302803
S20-K		-5.0...105.0 °C	Expert Pro	51302804
S20-KS			Routine Pro	51302863
S30	Cond/TDS/sal/	0.01 µS/cm...500 mS/cm	none	51302805
S30-K	resistivity/°C	-5.0...105.0 °C	730	51302806

See opposite for accessories

Non kit versions include:

Meter, electrode arm, in-use cover (SevenMulti™ only), calibration certificate, declaration of conformity
N.B. Electrode NOT included

Kit (K) versions include:

As above plus appropriate electrode, buffer sachets and guides

SevenMulti™

The Master of Versatility

- Modular system for pH, conductivity, ion concentration and ISFET
- Increased efficiency due to numerous automation options
- State-of-the-art data management with 1000 GLP measuring points, 400 GLP calibration points and 40 methods
- Easy integration in LIMS solutions

SevenMulti™
Benchtop pH,
conductivity, ion
& ISFET meters



SevenMulti™ – modular expansion at any time

An ingenious instrument concept based on precise electrochemical measuring techniques combined with the latest solutions for your laboratory requirements. The instrument's modular design allows you to upgrade it at any time with a number of handy plug-in expansion units. You can now easily turn it into a dual channel instrument. With SevenMulti™ you will find an overall sophisticated concept to meet the challenges of today and tomorrow.

Automatic recognition

SevenMulti™ automatically recognizes a new module that has been installed. This makes changing from one parameter to another fast and easy.



Automation increases efficiency

Efficiency is significantly increased using peripherals such as sample changers and bar-code readers – not only for high throughput applications. Calibrations and two-channel measurements can be automated using the Rondolino sample changer.



Flexible printout formats

You have the choice of three different printout formats: The GLP printout exports all the information via the interface, including the date and time of the last calibration. The standard printout includes everything relevant to the measurement. The short format contains just the measurement result and the temperature.



LabX® direct pH

The user-friendly PC software archives your results quickly and securely. It allows user-defined data to be transferred from SevenEasy™, SevenMulti™ and SevenGo pro™ to an application such as MS Excel. The values can be automatically displayed in the Excel templates supplied.

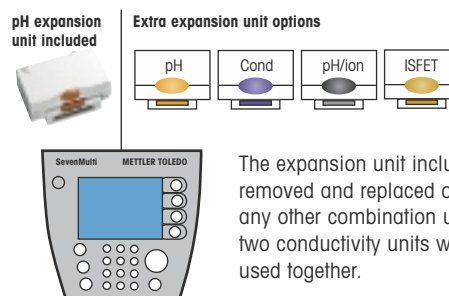
Sensor monitoring

Electrode test: An integrated pH electrode test checks the slope, offset, drift and response time of your electrodes without changing your current calibration.

Calibration reminder

This useful function reminds you that a calibration is due after a user-defined period. Set the meter to disable further operations once this period has been exceeded – until the next valid calibration!

Expansion unit example – S40



The expansion unit included can be removed and replaced or expanded by any other combination used except for two conductivity units which cannot be used together.



For more information

SevenMulti™

pH, conductivity, ion and ISFET meters

- GLP compliant
- USP/EP compliance (conductivity meter)¹⁾
- Upgradeable at any time
- Secure data management
- Smart help menu
- Auto buffer recognition
- Stand-alone electrode arm
- RS232C interface to connect to PC/printer
- Powerful memory, 1000 readings
- Alphanumeric keypad
- LabX direct pH included

www.mt.com/pHlab

Recommended: Professional service contract, see pages 6–11

Model	Parameters	Measuring range	Probe InLab®	Channels	Part No
S40	pH/mV/redox/°C	–2.000...19.999 pH	none	1	51302807
S40-K		–30.0...130.0 °C	Expert Pro		51302808
S40-KS			Routine Pro		51302864
S50	Ion/pH/mV/redox/°C	1.00E–9–9.99E+9 conc	none	1	51302867
S50-K		–2.000...19.999 pH	Expert Pro		51302868
S70	Cond./TDS/sal/resistivity/°C	0.001 µS/cm...1000 mS/cm	none	1	51302809
S70-K		–30.0...130.0 °C	730		51302810
S47	pH/mV/cond./°C	see S40 and S70	none	2	51302813
S47-K	TDS/sal/resistivity		Expert Pro		51302814
S47-KS			Routine Pro		51302865
S80	Ion/pH/mV/redox/°C	1.00E–9–9.99E+9 conc	none	2	51302811
S80-K		–2.000...19.999 pH	Expert Pro		51302812
S80-KS		–30.0...130.0 °C	Routine Pro		51302866

¹⁾ Compliance with the latest USP/EP standards for ultrapure water

Upgrade expansion units* (Must have SevenMulti meter before purchasing extra units)

pH	pH/mV/redox/°C	–2.000...19.999 pH, ±1999.9 mV, Err. limit ±0.002	51302821
Cond	Cond./TDS/sal/resist/°C	0.001 µS...1000 mS/cm, 0.1 mg/L...1000 g/L	51302822
pH/ion	pH/mV/ion/redox/°C	1.00E–9...–9.99E+9 conc, –2.000...19.999 pH	51302823
ISFET	pH/mV/°C	0.00...14.00 pH	51302824

Seven accessories

RS-P42 printer – alphanumeric (dot matrix)	SevenEasy™ and SevenMulti™	00229265
Cable – to connect RS-P42 printer/PC to Seven meter	SevenEasy™ and SevenMulti™	51302125
LabX direct pH PC Software	SevenEasy™, SevenMulti™ and SevenGo pro™	51302876
Protective cover	SevenMulti™ only	51302819
Electrode arm – complete	SevenEasy™ and SevenMulti™	51302820
USB Com module	SevenMulti™ only	51302826

SevenGo™ – Ergonomic Analysis



Portables

Portable pH, DO, ion & conductivity meters

- Portable measuring instruments for pH, conductivity, oxygen and ion analysis
- Robust measuring system for use under difficult conditions
- Efficiency thanks to unique ergonomic design and ease of use
- Revolutionary accessories and advanced sensor technology

ErGo™ – the Helpful Assistant

The field assistant ErGo™ is a synonym for perfect convenience when you carrying it and use it in production, in the laboratory or in the field. ErGo™ is continuously adjustable and can be used for a variety of functions.

Totally Waterproof by Design

What is IP67? The IP (Ingress Protection) standard consists of two digits: 6 means that SevenGo™ is completely dustproof; 7 means that SevenGo™ remains watertight for 30 minutes at a depth of 1 meter.

Overview of functions and features

	SevenGo™		SevenGo pro™		
Model	SG2	SG3	SG6	SG7	SG8
pH measurement	•				•
mV measurement	•				•
Relative mV					•
Concentration (ISE)					•
Conductivity		•		•	
TDS		•		•	
Resistivity		•		•	
Salinity		•		•	
Dissolved oxygen			•		
Barometric pressure			•		
Temperature	•	•	•	•	•
Cond.: Linear temp. compensation		•		•	
Cond.: Non-linear temp. compensation				•	
Calibration points	3	1	2	1	5
Buffer groups	4				6
User-defined standards	•			•	•
Manual entry of the cell constant				•	
Automatic and manual measurement value determination	•	•	•	•	•
Time interval measurement			•	•	•
Display illumination			•	•	•
Infrared interface			•	•	•
Routine and expert modes			•	•	•
Menu guidance using softkeys			•	•	•
GLP data memory	30	30	200	200	200
Use of ErGo™	•	•	•	•	•
Watertight according to IP67	•	•	•	•	•
Power: 4 AA batteries or 4 NiMH	•	•	•	•	•

SevenGo™

SG2 – pH

pH meter (IP67) for routine use

- Clear display of measured values and settings
- Continuous indication of electrode and battery status
- Automatic endpoint and buffer recognition as well as temperature compensation
- Data memory for 30 GLP data points
- 3-point calibration with predefined or user-defined buffers

SG2	Measuring range	Resolution	Accuracy
pH	0.00...14.00	0.01	±0.01
mV	–1999...1999	1	±1
Temperature	–5.0...105 °C	0.1 °C	±0.5 °C
Sensor inputs	BNC (>10 ¹² Ohm); NTC 30 K (both IP67)		

Kit	Description and sensor	Order No.
SG2-B	Meter only	51302521
SG2-ELK	Electrode kit with InLab®413 SG (IP67)	51302522
SG2-FK	Field kit with InLab®413 SG (IP67), field carry case	51302523
SG2-ASK	Assistant kit with InLab®413 SG (IP67), case and ErGo™	51302525

SG3 – conductivity

Conductivity meter for everyday work

- Automatic endpoint recognition and temperature compensation
- Predefined standards 84 µS/cm, 1413 µS/cm or 12.88 mS/cm
- Data memory for 30 GLP data points
- Clear display of measured value and settings
- Complete range of electrodes

SG3	Measuring range	Resolution	Accuracy
Conductivity	0.10 µS/cm... 500 mS/cm	0.10...1	±0.5%
Temperature	5.0...105 °C	0.1 °C	±0.2 °C
TDS	0.01 mg/L...300 g/L	0.01...1	±0.5%
Resistivity	0.00...100.00 MΩcm		
Salinity	0.00...80.00 ppt		
Sensor inputs	LTW 7 pin (IP67)		

Kit	Description and sensor	Order No.
SG3-ELK	Electrode kit with InLab®737 (IP67)	51302931
SG3-FK2	Field kit with InLab®737 (IP67), 1.8 m cable, field carry case	51302932
SG3-FK10	Field kit with InLab®737/10 m (IP67), 10 m cable, field carry case	51302933
SG3-ASK	Assistant kit with InLab®737 (IP67), case and ErGo™	51302934

for all SevenGo™ and SevenGo pro™ models:

Outputs (only SG6/7/8)	IR interface to printer or PC via RS232 or USB
Power requirements	4 AA batteries 1.5 V or NiMH accumulators 1.3 V
Size/weight, Ambient conditions	–5 °C...40 °C, 5%...80% rel. humidity (non-cond.)
Package size/weight	220x90x45 mm/325 g (without batteries)

www.mt.com/pHlab

For more information

SevenGo pro™

SG6 – dissolved oxygen

Professional oxygen instrument (IP67)

- Manual or automatic air pressure compensation with built-in barometer
- High-performance O₂ sensor
- Comprehensive range of accessories
- Data memory for 200 GLP data points
- Backlit display (applies to all SevenGo pro™ models)

SG6	Measuring range	Resolution	Accuracy
Saturation	0.0...600%	0.1...1	±0.5%
Temperature (°C/°F)	0.0...60 °C	0.1 °C	±0.1 °C
mg/L, ppm	0.00...99.00	0.01	±0.5%, max. 0.03
Pressure	500...1100 mbar	1	±2
Sensor inputs	BNC (>10 ¹² Ohm); NTC 22 K (both IP67)		

Kit	Description and sensor	Order No.
SG6-ELK	Electrode kit with InLab®605 (IP67)	51302561
SG6-FK2	Field kit with InLab®605 (IP67), 1.8 m cable, field carry case	51302562
SG6-FK10	Field kit with InLab®605 (IP67), 10 m cable, field carry case	51302563
SG6-ASK	Assistant kit with InLab®605 (IP67), case and ErGo™	51302564

SG7 – conductivity

Professional conductivity meter (IP67)

- Calibration also with user-definable standard or cell constant
- Linear and non-linear temperature compensation
- Measurement of purified water according to USP
- Data memory for 200 GLP data points
- Comprehensive GLP functions with sensor and sample identification

SG7	Measuring range	Resolution	Accuracy
Conductivity	0.01 µS/cm... 1000 mS/cm	0.01	±0.5%
Temperature (°C/°F)	–5.0...105 °C	0.1 °C	±0.5 °C
TDS	0.01 mg/L...600 g/L	0.01	±0.5%
Resistivity	0.00...100.00 MΩcm		
Salinity	0.00...80.00 ppt		
Sensor inputs	LTW 7 pin (IP67)		

Kit	Description and sensor	Order No.
SG7-ELK	Electrode kit with InLab®737 (IP67)	51302571
SG7-FK2	Field kit with InLab®737 (IP67), 1.8 m cable, field carry case	51302572
SG7-FK10	Field kit with InLab®737/10 m (IP67), 10 m cable, field carry case	51302573
SG7-ASK	Assistant kit with InLab®737 (IP67), case and ErGo™	51302574

SG8 – pH/Ion

pH/Ion meter (IP67) for highest demands

- Simple ion concentration determination
- Time interval measurement with automatic data logging
- Data memory for 200 GLP data points
- Segmented or linear calibration as desired
- 5-point calibration with choice of 6 predefined and one user-defined buffer set

SG8	Measuring range	Resolution	Accuracy
pH	–2.000...19.999	0.001	±0.002
mV (rel. mV)	–1999...1999	0.1	±0.1
Temperature (°C/°F)	–5.0...130.0 ATC 30.0...130.0 MTC	0.1 °C	±0.2 °C
Sensor inputs	BNC (>10 ¹² Ohm); NTC 30 KΩ (each IP67)		

Kit	Description and sensor	Order No.
SG8-B	Meter only	51202581
SG8-ELK	Electrode kit with InLab®413 SG (IP67), field carry case	51202582
SG2-FK	Field kit with InLab®413 SG (IP67), field carry case	51202583
SG2-ASK	Assistant kit with InLab®413 SG (IP67), case and ErGo™	51202584
SG7-USP/EP	Electrode kit with InLab®740	51302575

Your Personal Electrode

METTLER TOLEDO Ingold electrodes have been synonymous with quality for 60 years. Our product offering covers the vast majority of applications both for laboratory and field measurement. Just look through our portfolio to find the right electrode for your application.

pH & ORP electrodes
InLab®



InLab® economy and general purpose



Premium InLab® and pH specialists



Polymer electrolyte

These black sensors are particularly insensitive to contamination. Its reference electrode is in direct contact with the measured medium by means of two open connections, hence there is no junction to block.



www.mt.com/phlab_sensors

For more information

Name	Type	Features/description	Connector	BNC Cable	Part No
InLab® economy electrodes					
InLab®Versatile	Economy 2-in-1	Replaceable junction, refillable	BNC	included	51343030
InLab®Versatile Pro	Economy 3-in-1	Replaceable junction, refillable, ATC probe	BNC/RCA	included	51343031
InLab®Easy	Economy 2-in-1	Gel-filled, polysulfone shaft	S7	52300004*	51343010
InLab®Easy BNC	Economy 2-in-1	Gel-filled, polysulfone shaft	BNC	included	51343011
InLab®Basics BNC	Economy 2-in-1	ARGENTHAL with Ag ⁺ ion trap	BNC	included	51343020
General purpose pH glass electrodes					
InLab®Routine	General Purpose 2-in-1	ARGENTHAL with Ag ⁺ ion trap	S7	52300004*	51343053
InLab®Routine Pt1000	General Purpose 3-in-1	ARGENTHAL with Ag ⁺ ion trap	MultiPin™	included	51343056
InLab®Routine Pro	General Purpose 3-in-1	ATC probe (TRIS compatible)	MultiPin™	52300009*	51343054
InLab®Science	General Purpose 2-in-1	Movable glass sleeve	S7	52300004*	51343070
InLab®Science Pro	General Purpose 3-in-1	Movable glass sleeve, ATC probe	MultiPin™	52300009*	51343071
pH electrodes with polymer electrolyte					
InLab®Expert Pro (kit electrode)	Premium 3-in-1	Open junction, PEEK shaft, 0...100 °C	BNC/RCA	included	51343101
InLab® 413 SG	Premium 3-in-1	Open junction, PEEK shaft, IP67	BNC/RCA	included	51340288
		Waterproof connectors for use with portable meters SevenGo™ SG2 + SG8			
InLab®Expert NTC30	Premium 3-in-1	Open junction, PEEK shaft, 0...100 °C	MultiPin™	52300009*	51343104
Premium InLab® electrodes with pressurized electrolyte					
InLab®Power	Premium 2-in-1	Pressurized reference system SteadyForce™	S7	52300004*	51343110
InLab®Power Pro	Premium 3-in-1	ATC probe, 170 mm long, SteadyForce™	MultiPin™	52300009*	51343111
InLab®Viscous	Premium 2-in-1	SteadyForce™, special thin tip	S7	52300004*	51343150
InLab® pH specialists					
InLab®Semi-Micro	Specialist 2-in-1	6 mm shaft diameter	S7	52300004*	51343165
InLab®Semi-Micro-L	Specialist 2-in-1	200 mm long, 6 mm shaft diameter	S7	52300004*	51343161
InLab®Micro	Specialist 2-in-1	3 mm shaft diameter	S7	52300004*	51343160
InLab®Reach	Specialist 2-in-1	300 mm long	S7	52300004*	51343060
InLab®Surface	Specialist 2-in-1	Flat-ended membrane, polysulfone shaft	S7	52300004*	51343157
InLab®Solids	Specialist 2-in-1	Spear tip	S7	52300004*	51343153
InLab®Solids Pro	Specialist 3-in-1	Spear tip, ATC probe	MultiPin™	52300009*	51343154
InLab®Cool	Specialist 2-in-1	FRISCOLYT-B electrolyte, -30...80 °C	S7	52300004*	51343174
InLab®Hydrofluoric	Specialist 2-in-1	Special HF resistant membrane	S7	52300004*	51343176
InLab®Reach Pro	Specialist 3-in-1	400 mm long, ATC probe	MultiPin™	52300009*	51343061
InLab®Pure	Specialist 2-in-1	dirt repellent PTFE junction, gel electrolyte	S7	52300004*	51343170
InLab®Pure Pro	Specialist 3-in-1	Triple junction, ATC probe, electrolyte bridge	MultiPin™	52300009*	51340255
InLab®490	Specialist 3-in-1	ISFET probe with driTEK reference	Mini-DIN	included	51302305
ORP/Redox electrodes					
InLab®Redox	ORP half-cell	Platinum ring	S7	52300004*	51343200
InLab®Redox Au	ORP half-cell	Gold ring	S7	52300004*	51343204
InLab®Redox Ag	ORP half-cell	Silver ring, KNO ₃ electrolyte	S7	52300004*	51343205
InLab®Redox Pro	ORP half-cell	Platinum ring, movable PTFE sleeve	S7	52300004*	51343201
Pt805-S7/120	ORP half-cell	Platinum ring	S7	59902392*	59904377
Temperature sensors					
InLab®NTC 30kΩ laboratory temperature sensor in glass shaft (cable not included) (120 x 12 mm), with quality certificate					51343310
InLab®Pt1000 laboratory temperature sensor in glass shaft (cable not included) (120 x 12 mm), with quality certificate					51343312
NTC 30 kΩ temperature probe in stainless steel (cable included)					51300164
PT1000 temperature probe in stainless steel (cable included)					51300165

* BNC cables are sold separately, and are not included in the price of the electrodes.

2-in-1 combination electrode: this is a reference and pH half-cell in one electrode.

3-in-1 combination electrode: this electrode has a built-in temperature sensor as well as a reference and pH half-cell.

Determinations – Precisely!

All You Need in one Probe

Conductivity probes

The probes in our InLab®700 series include a built-in temperature sensor enabling automatic temperature compensation. The InLab®740 easily fulfils the stringent conductivity requirements of the United States and European Pharmacopoeia (USP/EP).



InLab

Conductivity probes & ISE

Modular and Versatile

Ion-selective half-cells and gas sensitive electrodes

METTLER TOLEDO offers one of the largest ranges of ion-selective and gas sensitive electrodes in the world. The ion-selective electrodes (ISE's) can be used with your titrator as well as your ion meter. Please contact the Laboratory Technical Support Team for more details, including application information.



The Perfect Quality

Combination ion-selective electrodes

Each ion-selective electrode (ISE) and each membrane module is tested wet-chemically. It has to pass the stringent requirements of several direct measurements as well as a typical titration application. Each ISE is issued with its own serial number and quality certificate.





www.mt.com/phlab_sensors

For more information

Conductivity probes

Name	Type	Measuring range	Cell constant	Mini-DIN cable	Part No
InLab®710	4 platinum poles, glass shaft	10 µS/cm...500 mS/cm	0.80	included	51302256
InLab®720	2 platinum poles, glass shaft	0.1 µS/cm...500 µS/cm	0.06	included	51302255
InLab®730 (kit electrode)	4 graphite poles, epoxy shaft	10 µS/cm...1000 mS/cm	0.56	included	51302119
InLab®740 (USP)	2 steel poles, steel/PVC shaft	0.001 µS/cm...500 µS/cm	0.08	included	51340260

Ion-selective half-cells and gas sensitive electrodes (GSE)

Name	Ion	Type of membrane	Cable for titrator	Cable to fit ion/pH meter	Part No
NH ₃ GSE	Ammonia	Polymer Matrix	089601*	52300004*	51341000
DX218-NH ₄ ⁺	Ammonium #	Polymer Matrix	089601*	52300004*	51340900
DX337-Ba ²⁺	Barium #	Polymer Matrix	089601*	52300004*	51107674
DX280-Br ⁻	Bromide #	Solid State	089601*	52300004*	51340300
DX312-Cd ²⁺	Cadmium #	Polymer Matrix	089601*	52300004*	51107672
DX240-Ca ²⁺	Calcium #	Polymer Matrix	089601*	52300004*	51340600
CO ₂ GSE	Carbon Dioxide	Polymer Matrix	089601*	52300004*	51341200
DX235-Cl ⁻	Chloride #	Solid State	089601*	52300004*	51340400
DX264-Cu ²⁺	Copper #	Solid State	089601*	52300004*	51107678
DX226-CN ⁻	Cyanide #	Solid State	089601*	52300004*	51107681
DX219-F ⁻	Fluoride #	Solid State	089601*	52300004*	51340500
DX287-BF ₄ ⁻	Fluoroborate #	Polymer Matrix	089601*	52300004*	51107676
DX327-I ⁻	Iodide #	Solid State	089601*	52300004*	51107680
DX407-Pb ²⁺	Lead #	Polymer Matrix	089601*	52300004*	51107873
DX207-Li ⁺	Lithium #	Polymer Matrix	089601*	52300004*	51107673
DX262-NO ₃ ⁻	Nitrate #	Polymer Matrix	089601*	52300004*	51340800
DX239-K ⁺	Potassium #	Polymer Matrix	089601*	52300004*	51340700
DX223-Na ⁺	Sodium #	Glass	089601*	52300004*	51340263
DX232-S ²⁻	Sulphide (Silver Sulphide) #	Solid State	089601*	52300004*	51107675
DS500	Surfactant		089601*	52300004*	51107670
DX258-SCN ⁻	Thiocyanate #	Solid State	089601*	52300004*	51107870

Reference electrode required. See below. For membrane kits and accessories see page 105.

NO _x GSE	Nitrogen Oxides	NH ₃ GSE 51341000 + NO _x electrolyte 51340037
CO ₂ GSE	Carbon Dioxide	NH ₃ GSE 51341000 + CO ₂ electrolyte 51340038

Half-cell and reference electrodes

Name	Type	Features/description	Connector	Cable for titrator	BNC cable	Part No
InLab®Mono	pH half-cell	pH glass electrode	S7	089601*	52300004*	52000127
InLab®Reference	Reference electrode	Ceramic junction	S7	52300015*	52300016*	52000128
InLab®Reference Pro	Reference electrode	Teflon sleeve, electrolyte bridge	S7	52300015*	52300016*	52000129
DX200	Reference electrode for titration	Ground glass sleeve, electrolyte bridge	S7	52300015*	52300016*	51089935

* Cables are sold separately, and are not included in the price of the electrodes. See page 121 for information.

Combination ion-selective electrodes

Name	Ion	Type of membrane	Cable for titrator	Cable to fit ion/pH meter	Part No
DC218-NH ₄ ⁺	Ammonium	Polymer Matrix	089601*	52300004*	51340910
DC280-Br ⁻	Bromide	Solid State	089601*	52300004*	51340310
DC240-Ca ²⁺	Calcium	Polymer Matrix	089601*	52300004*	51340610
DC235-Cl ⁻	Chloride	Solid State	089601*	52300004*	51340410
DC219-F ⁻	Fluoride	Solid State	089601*	52300004*	51340510
DC262-NO ₃ ⁻	Nitrate	Polymer Matrix	089601*	52300004*	51340810
DC239-K ⁺	Potassium	Polymer Matrix	089601*	52300004*	51340710

* Cables are sold separately, and are not included in the price of the electrodes. See page 121 for information.

A Solution Within Hands-Reach

Buffers and Standards



METTLER TOLEDO buffer solutions are traceable to primary standards selected by NIST (National Institute of Standards and Technology, USA). Each buffer solution comes with a quality inspection certificate which guarantees the stated values and traceability.

www.mt.com/buffer

Download your detailed test certificate

www.mt.com/msds

Material Safety Data Sheet (MSDS)

Storage and Refill Solutions for pH and Redox Electrodes

Good maintenance of electrodes demands cleaning and storing in correct solutions. This allows immediate use of the electrodes and ensures a short response time. Electrodes with filling ports can be refilled. A clean electrode should be calibrated with correct buffer solutions.

Spare Parts for ISEs

To ensure optimum performance, ion selective electrodes must be maintained and stored correctly. METTLER TOLEDO provides membrane kits and electrolytes for ion selective electrodes.

The electrolyte solution is chosen to maximise stability of the electrode and precision of ISE measurements.

pH buffers

pH buffer soln	Color	Packaging	Part No
2.00	Clear	250 mL bottle	51340055
2.00	Clear	6x250 mL bottles	51319010
4.01	Clear	30x20 mL sachets	51302069
4.01	Red	250 mL bottle	51340057
4.01	Red	6x250 mL bottles	51340058
7.00	Clear	30x20 mL sachets	51302047
7.00	Green	250 mL bottle	51340059
7.00	Green	6x250 mL bottles	51340060
9.21	Clear	30x20 mL sachets	51302070
9.21	Blue	250 mL bottle	51300193
9.21	Blue	6x250 mL bottles	51300194
10.00	Clear	250 mL bottle	51340056
10.00	Clear	6x 250 mL bottle	51340231
10.00	Clear	30x20 mL sachets	51302079
11.0	Clear	250 mL bottle	51340063
11.0	Clear	6x250 mL bottles	51319018
Rainbow boxes			
4.01/7.00/9.21		30x20 mL sachets	51302068
4.01/7.00/10.00		30x20 mL sachets	51302080
pH buffer solutions NIST and DIN 19266 pH \pm0.015			
4.006	Clear	250 mL bottle	51340039
4.006	Clear	6x250 mL bottles	51319004
6.865	Clear	250 mL bottle	51340041
6.865	Clear	6x250 mL bottles	51319005
9.180	Clear	250 mL bottle	51340042
9.180	Clear	6x250 mL bottles	51319007
10.012	Clear	250 mL bottle	51340044
DKD-certified buffer solutions			
4.01	Red	250mL bottle	52118093
7.00	Green	250mL bottle	52118094
9.21	Blue	250mL bottle	52118095
10.00	Clear	250mL bottle	52118096
ISA solutions			
TISAB 3, for determination of Fluoride, 250 mL bottle			51340064
0.9 mol/l $\text{Al}_2(\text{SO}_4)_3$, for determination of Ammonium, Potassium, Nitrate, 250 mL bottle			51340072

Spare parts and filling solutions for ISE and GSE electrodes

Ion	Membrane kit		Filling solution
	Part No	Price (£)	Part No
NH_3 GSE	51340013	170.00	51340036
Ammonium ISE*	51340012	235.00	51340035
Barium ISE*	51107688	220.00	51107892
Bromide ISE*	51340006	235.00	51340029
Cadmium ISE*	51107686	220.00	51107891
Calcium ISE*	51340009	235.00	51340032
Chloride ISE*	51340007	195.00	51340030
CO_2 GSE	51340015	POA	51340038
Copper ISE	51107692	220.00	51107889
Cyanide ISE*	51107695	220.00	51107893
Fluoride ISE*	51340008	235.00	51340031
Fluoroborate ISE*	51107690	220.00	51107890
Iodide ISE*	51107694	220.00	51107898
Lead ISE	51107874	POA	51107875
Lithium ISE*	51107687	220.00	51107881
Magnesium ISE*	51107698	220.00	51107885
Nitrate ISE *	51340011	215.00	51340034
NO_x GSE	51340014	185.00	51340037
Potassium ISE*	51340010	215.00	51340033
Sulphide ISE*	51107689	220.00	51107894
Surfactant	51107669	420.00	51107899
Thiocyanate ISE	51107871	POA	51107872

* Membrane kit contains solution, membrane and ID ring

Buffers and standards

Conductivity standards		Part No
84 $\mu\text{S}/\text{cm}$	500 mL bottle	51302153
1413 $\mu\text{S}/\text{cm}$	30x20 mL sachets	51302049
1413 $\mu\text{S}/\text{cm}$	250 mL bottle	51300138
1413 $\mu\text{S}/\text{cm}$	6x250 mL bottles	51300259
12.88 mS/cm	30x20 mL sachets	51302050
12.88 mS/cm	250 mL bottle	51300139
12.88 mS/cm	6x250 mL bottles	51300260
Redox buffer solutions. E(Ag/AgCl) 25 °C		
220 mV $U_H = 427$ mV	250 mL bottle	51340065
220 mV $U_H = 427$ mV	6x250 mL bottle	51340081

Storage and refill solutions

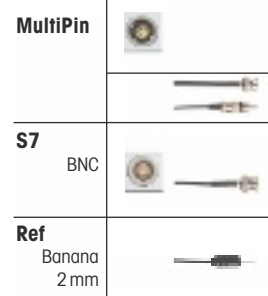
Electrolytes for reference electrodes		Part No
KCl 3 mol/l	250 mL bottle	51340049
KCl 3 mol/l, AgCl saturated	250 mL bottle	51340045
Friscolyt-B® storage solution for InLab®413 pH electrode	250 mL bottle	51340053
1M KNO_3 filling solution	250 mL	51340047

Cleaning solutions

Pepsin-HCl for cleaning junctions with protein contamination, treatment approx 1 hr	250 mL bottle	51340068
Pepsin-HCl	6x250 mL	51340069
Thiourea solution for cleaning junctions with silver sulphide contamination, treatment until clean	250 ml bottle	51340070
Thiourea solution	6x250 mL	51340082
Reactivation solution for regeneration of glass end electrodes, treatment approx 1 min	25 mL bottle	51340073

Detachable Cables The Right Connections

We supply various cables. For more information, including help with selecting the correct cable, contact our Laboratory Technical Support Team.



Cables for electrodes

Type	Part No
S7 screwhead to BNC for pH and redox electrodes (without temp sensor)	52300004
MultiPin™ head to BNC/RCA for electrodes with NTC30K temp probe	52300009
S7 screwhead to 2 mm pin for reference half-cell	52300016
Red S7 screwhead to BNC	59902392

Highest Measuring Performance

METTLER TOLEDO is the technology leader in thermal analysis instrumentation. The innovative product range includes DSC, TGA, TMA and DMA, an unmatched, very powerful common software platform and an outstanding worldwide customer support and service network.



TGA/DSC



TMA



DSC



MultiSTAR[®] Sensors

with 56 and 120 thermocouples guarantee unmatched sensitivity and resolution.



DMA

Select the Right Thermal Analysis System

DSC

Differential scanning calorimetry

DSC is the most versatile thermal analysis method. It is widely used for quality control and also in research and development.

TGA/DSC

Thermogravimetric analysis

The TGA/DSC measures sample weight as a function of temperature. You can perform compositional analysis or investigate the reaction kinetics of your sample.

TMA

Thermomechanical analysis

TMA is used to measure thermal expansion, viscoelastic properties and the glass transition temperature of samples.

DMA

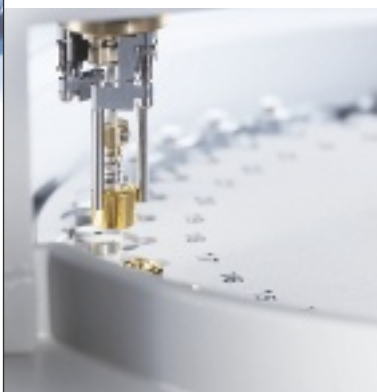
Dynamic mechanical analysis

DMA provides viscoelastic information including mechanical moduli, compliances and damping behavior as well as the glass transition temperature



Integrated Ultramicrobalance for Unbeatable Accuracy

The optional sample robot handles
all types of crucibles and increases
efficiency in your laboratory.



Fully Automatic



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For more information

**With thermal analysis you can
measure all kinds of physical
properties, phase transitions
and chemical changes.**

	Plastics	Pharmaceuticals	Organic products	Inorganic products	Foods	DSC	TGA	TMA	DMA
Physical properties									
Specific heat	•	•	•	•	•	•			
Coefficient of expansion, shrinkage behavior	•							•	
Elastic behavior	•							•	•
Phase transitions									
Melting/crystallization	•	•	•	•	•	•		•	•
Evaporation/drying	•	•	•	•	•		•		
Solid/solid polymorphic changes	•	•	•	•	•	•			
Glass transition, softening	•				•	•		•	•
Polymorphism		•	•	•	•	•		•	•
Liquid fraction					•	•			
Liquid crystal transitions	•		•			•		•	•
Crystallinity	•					•			
Enthalpy of fusion	•	•	•	•	•	•			
Purity		•	•	•		•			
Chemical changes									
Decomposition, pyrolysis	•	•	•	•	•		•		
Oxidation, oxidative stability	•	•	•	•	•	•	•		
Content determination, fillers	•	•	•	•	•	•	•		•
Dehydration, moisture	•	•	•	•	•		•		
Reaction profile, kinetics	•		•	•		•	•		
Degree of cure, vulcanization	•					•			•
Safety investigations	•	•	•			•			
Reaction enthalpy	•		•	•		•			

ServiceXXL
Tailored Services

Recommended:
Professional service contract.
See pages 6–11

Exact Knowledge of Thermal Behaviour



Thermal Values Within Minutes

The **FP900** system easily determines all the quality-relevant thermal values and the optional PC software provides you with enhanced possibilities.

Heat your sample under the microscope, observe the physical changes and simultaneously measure thermal behaviour with the FP82HT or FP84HT.



Application fields of measuring cells

	FP81C	FP81HT	FP82HT	FP83HT	FP84HT	FP85
Melting point		•	•			•
Melting range		•	•		•	•
Melting and solidification behaviour			•		•	•
Crystallinity, crystal formation			•		•	•
Cloud point	•	•				
Boiling point	•	•				
Purity		•			•	•
Eutectic melting			•		•	•
Phase transition, polymorphism			•		•	•
Decomposition temperature			•		•	•
Oxidative stability						•
Glass transition						•
Reaction enthalpy					•	•
Enthalpy of fusion and transition					•	•
Dehydration			•		•	•
Curing					•	•
Dropping point				•		
Softening point of pitch, asphalt				•		

High Sample Throughput

The **FP81HT** measures three samples simultaneously and automatically determines melting, cloud or boiling points.



For Quality Control Rapid, Simple and Rugged

A dedicated instrument for quality control with a permanent reference and one exchangeable sample position. Identify your raw materials or check their final quality with the **FP85**.



Accessories

	Part No
Set of 150 melting point capillaries	00018552
Set of boiling point tubes	00018572
Set of boiling capillaries	00018574
Set of sample slides	00018646
Set of cover glasses	00070191
Set of sample cups 2.8 mm	00018732
Set of sample cups 6.35 mm	00018127
Cartridge (collector sleeve/cup holder)	00017725
Set of aluminium crucibles	00027331
Crucible handling set	00119091

Automatic Melting Point Determination

The FP62 is a stand-alone instrument for simple and reliable determination of the most frequently used thermal values.



FP62	
Temperature	Room temperature ... 300 °C
Heating rate	0.1 ... 10 °C/min
Accuracy	up to 200 °C: ±0.5 °C
Part No	00017800

Accessories	Part No
Set of 150 melting point capillaries	00018552
Tube rack	00018399
Test substance (benzoic acid)	00018555



www.mt.com/fp

For more information

Enabling Technologies

Accelerating Chemical Discovery, Development, and Manufacturing

METTLER TOLEDO AutoChem provides instruments and services that enable scientists and engineers to speed the development and delivery of new chemical compounds in the Bio-Pharma, Chemical, Petrochemical, and Polymer industries.

Discovery



Development



Manufacturing



A MultiMax robotics-based liquid handling system for parallel operation of up to 32 reactors is designed for process research and development. The system components can be adapted to fit your applications work environment.

► www.mt.com/multimax



Reaction calorimeter RC10 with a RTCal™ reactor for online heat data attached. The vessel includes an iC10 probe for online concentration measurement, a PVM® probe for particle visualization and a FBRM® probe for particle characterization.

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 ► www.mt.com/lasentec



The MultiMax multi-vessel automated lab reactor coupled with the ReactIR™ iC10 *in-situ* FTIR technology serves the needs of organic and process chemists in Process Research and Development (PRD) labs.

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