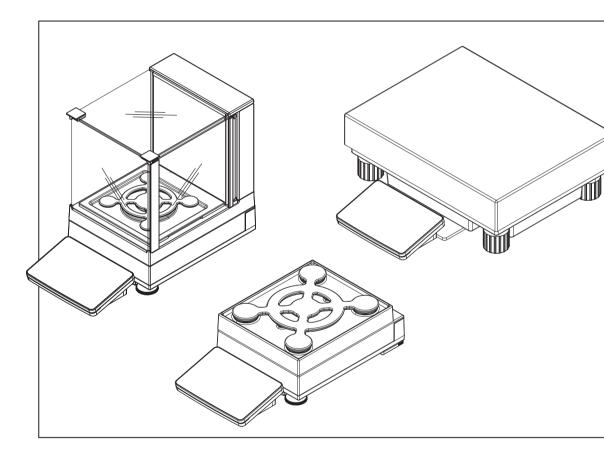
XSR





# **Table of Contents**

1	Intro	duction	7
	1.1	Further documents and information	7
	1.2	Explanation of conventions and symbols used	7
	1.3	Acronyms and abbreviations	8
	1.4	Product range	8
		1.4.1 XSR precision balances	8
		1.4.1.1 S weighing platform	8
		1.4.1.2 L weighing platform	ç
	1.5	Compliance information	ç
2	Safet	y Information	11
-	2.1	Definitions of signal words and warning symbols	11
	2.2	Product-specific safety information	11
3		gn and Function	13
	3.1	Function description	13
	3.2	Overview S weighing platform	13
		3.2.1 Balances with readability 1 mg	13
		3.2.2 Balances with readability 10 mg and 100 mg	14
		3.2.3 Interface board	14
	3.3	Overview L weighing platform	15
		3.3.1 Balances with readability of 100 mg and 1 g	15
		3.3.2 Interface board	15
	3.4	Overview terminal	16
	3.5	Overview type plate	16
	3.6	User interface	17
		3.6.1 Main sections at a glance	17
		3.6.2 Main weighing screen	17
		3.6.3 Work screen "Balance menu"	18
		3.6.4 Work screen "Methods"	18
		3.6.5 Work screen "Protocol"	19
		3.6.6 Icons and symbols	20
		3.6.6.1 System status icons	20
		3.6.6.2 Weighing status icons	20
4	Insta	llation and Putting into Operaton	22
	4.1	Selecting the location	22
	4.2	Unpacking the balance	
	4.3	Scope of delivery	23
		4.3.1 S weighing platform	
		4.3.2 L weighing platform	23
	4.4	Assembling the balance	23
		4.4.1 Models with S weighing platform	23
		4.4.1.1 Attaching the terminal to the weighing platform	23
		4.4.1.2 Installing the MagicCube Draft Shield	25
		4.4.2 Models with L weighing platform	27
		4.4.2.1 Attaching the terminal to the weighing platform	27
		4.4.2.2 Balances 0.1 g and 1 g	28
	4.5	Putting into operation	28
	1.0	4.5.1 Connecting the balance	28
		4.5.2 Switching on the balance	29
		4.5.3 Leveling the balance	29
		4.5.4 Setting the balance to standby mode	29
		4.5.5 Switching off the balance	
	4.6	Performing a simple weighing	30

		4.6.1 4.6.2 4.6.3 4.6.4	Zeroing the balance  Taring the balance  Performing a weighing  Completing the weighing.	30 30
	4.7		Completing the weighinging, packing and storing	30 31 31
		4.7.2 4.7.3	Transporting the balance over long distances	
	4.8	Weighing 4.8.1 4.8.2	below the balance S weighing platform L weighing platform.	
5	Oper	ation		33
	5.1	Touch scr	een	33
		5.1.1	Selecting or activating an item	
		5.1.2	Scrolling	
		5.1.3	Entering characters and numbers	
		5.1.4	Changing the date and time	
	5.2			34
		5.2.1	Methods overview	
		5.2.2	Method "General weighing"	
		5.2.2.1	Creating a method "General weighing"	35
		5.2.2.2	Performing a "General weighing"	35
		5.2.3	Method "Simple formulation"	
		5.2.3.1	Creating a method "Simple formulation"	36
		5.2.3.2	Performing a "Simple formulation"	37
		5.2.4	Method "Piece counting"	
		5.2.4.1 5.2.4.2	Creating a method "Piece counting"	38
			Performing a "Piece counting"	38
		5.2.5 5.2.5.1	Method "Titration"	39 39
		5.2.5.1	Creating a method "Titration"	40
		5.2.5.2	Performing a "Titration"	
		5.2.6.1	Method "Density determination"	40 41
		5.2.6.1	Creating a method "Density determination"	41
		5.2.7	Editing a method	41
		5.2.7	Cloning a method	42
		5.2.9	Deleting a method	42
		5.2.10	Using method templates	
		5.2.10.1	Defining a template during the method-defining process	43
		5.2.10.2	Defining a template in a current task	43
		5.2.10.3	Working with templates	43
	5.3		Working Will fortification	43
	0.0	5.3.1	Overview routine tests	44
		5.3.1.1	Eccentricity test	44
		5.3.1.2	Repeatability test	44
		5.3.1.3	Sensitivity tests	44
		5.3.2	Creating an own new test	44
		5.3.3	Defining a test weight	45
		5.3.4	Performing a test	46
		5.3.4.1	Performing an eccentricity test	46
		5.3.4.2	Performing a repeatability test	47
		5.3.4.3	Performing a sensitivity test	48
		5.3.5	Editing a test	50
		5.3.6	Printing test results	50
		5.3.7	Deleting a test	50
		5.3.8	Consulting the test history	50
	E 4	A ali a bre		E 1

Table of Contents Precision Balances

		5.4.1	Internal adjustment	
		5.4.1.1	Editing an internal adjustment	51
		5.4.1.2	Performing an internal adjustment	51
		5.4.2	External adjustment	51
		5.4.2.1	Editing an external adjustment	51
		5.4.2.2	Performing a external adjustment	52
		5.4.3	Consulting the adjustment history	
	5.5	External d	evices	
	0.0	5.5.1	Adding a device	
		5.5.2	Deleting a device	
		5.5.3	Editing device settings	
		5.5.4		
	F 0		Printing a test page	
	5.6		profiles	53
	5.7		agement	54
		5.7.1	Exporting data and settings	
		5.7.2	Importing data and settings	
	5.8		protection and balance reset	
		5.8.1	Creating an unblocking password	
		5.8.2	Blocking and unblocking the settings	55
		5.8.2.1	Blocking the settings	55
		5.8.2.2	Unblocking the settings	55
		5.8.3	Blocking and unblocking the balance	55
		5.8.3.1	Blocking the balance	55
		5.8.3.2	Unblocking the balance	56
		5.8.4	Resetting the balance	
6		are Descrip		57
	6.1	Balance m	nenu settings	57
		6.1.1	Leveling aid	
		6.1.2	History	57
		6.1.2.1	Adjustments	57
		6.1.2.2	Tests	57
		6.1.2.3	Service	58
		6.1.3	Balance info	58
		6.1.4	Settings	58
		6.1.4.1	Balance	59
		6.1.4.2	Interfaces	64
		6.1.4.3	Devices / Printers	65
		6.1.4.4	LabX / Services	66
		6.1.4.5	Printing the settings	66
		6.1.5	Maintenance	67
		6.1.5.1	Service menu	67
	6.2		methods settings	67
	0.2	6.2.1	Settings: method "General weighing"	67
		6.2.1.1		
			General	68
		6.2.1.2	ID format	68
		6.2.1.3	Weighing item	69
		6.2.1.4	Templates	69
		6.2.1.5	Weighing	70
		6.2.1.6	Automation	72
		6.2.1.7	Print / Export	73
		6.2.2	Settings: method "Simple formulation"	77
		6.2.2.1	General	77
		6.2.2.2	Formulation	78
		6.2.2.3	ID format	79
				00
		6.2.2.4	Weighing item	80
		6.2.2.4 6.2.2.5	Weighing item Templates	80

		6.2.2.7	Automation	81
		6.2.2.8	Print / Export	82
		6.2.3	Settings: method "Piece counting"	. 85
		6.2.3.1	General	86
		6.2.3.2	ID format	86
		6.2.3.3	Weighing item	87
		6.2.3.4	Weighing	87
		6.2.3.5	Automation	
		6.2.3.6	Print / Export	
		6.2.4	Settings: method "Titration"	
		6.2.4.1	General	
		6.2.4.2	ID format	
		6.2.4.3	Weighing item	
		6.2.4.4	Weighing	
		6.2.4.5	Automation	
		6.2.4.6	Print / Export	
		6.2.5	Settings: method "Density determination"	
		6.2.5.1	General	
		6.2.5.2	Density	
		6.2.5.3	ID format	
		6.2.5.4	Weighing item	
		6.2.5.5	Weighing	
		6.2.5.6	Automation	
		6.2.5.7	Print / Export	
	6.3		ings	
	0.0	6.3.1	Settings: eccentricity test	
		6.3.2	Settings: repeatability test	
		6.3.3	Settings: sensitivity test	
	6.4		nts settings	
7		tenance		117
	7.1		nce tasks	
	7.2			
		7.2.1	Cleaning agents	
		7.2.2	Cleaning the balance	
		7.2.3	Putting into operation after cleaning	. 119
	7.3	Software (	update	
	7.3	Software (	Updating the software	. 119
	7.3	Software (7.3.1 7.3.2	Updating the software	. 119 . 120
	7.3	Software (	Updating the software	. 119 . 120
		Software (7.3.1 7.3.2 7.3.3	Updating the software  Restoring the software to the previous version  Putting into operation after software update	. 119 . 120 . 120
8	Troub	Software (7.3.1 7.3.2 7.3.3	Updating the software  Restoring the software to the previous version  Putting into operation after software update	. 119 . 120 . 120
8	<b>Troub</b> 8.1	Software of 7.3.1 7.3.2 7.3.3 Sleshooting Error mes	Updating the software  Restoring the software to the previous version  Putting into operation after software update  ssages	. 119 . 120 . 120 <b>121</b> 121
8	<b>Troub</b> 8.1 8.2	Software of 7.3.1 7.3.2 7.3.3 Sleshooting Error mes Error sym	Updating the software  Restoring the software to the previous version  Putting into operation after software update  ssages  ptoms	. 119 . 120 . 120 <b>121</b> 121 121
8	<b>Troub</b> 8.1	Software of 7.3.1 7.3.2 7.3.3 Sleshooting Error mes Error sym	Updating the software  Restoring the software to the previous version  Putting into operation after software update  ssages	. 119 . 120 . 120 <b>121</b> 121 121
	Troub 8.1 8.2 8.3	Software of 7.3.1 7.3.2 7.3.3 Seleshooting Error mes Error sym Putting in sical Data	Updating the software Restoring the software to the previous version Putting into operation after software update  ssages uptoms to operation after fixing an error	. 119 . 120 . 120 . 121 121 121 123
	Troub 8.1 8.2 8.3 Techn 9.1	Software of 7.3.1 7.3.2 7.3.3 Seleshooting Error mes Error sym Putting in General d	Updating the software  Restoring the software to the previous version  Putting into operation after software update  ssages  ptoms  to operation after fixing an error	. 119 . 120 . 120 . 121 121 123 124 124
	Troub 8.1 8.2 8.3 Techn 9.1 9.2	7.3.1 7.3.2 7.3.3  Pleshooting Error mes Error sym Putting in  Dical Data General d Explanato	Updating the software Restoring the software to the previous version Putting into operation after software update ssages uptoms to operation after fixing an error.  data bry notes for the METTLER TOLEDO AC/DC adapter	. 119 . 120 . 120 . 121 121 123 124 124 125
	Troub 8.1 8.2 8.3 Techn 9.1	7.3.1 7.3.2 7.3.3  Pleshooting Error mes Error sym Putting in  Dical Data General d Explanato Model-spe	Updating the software Restoring the software to the previous version Putting into operation after software update ssages sptoms to operation after fixing an error.  data bry notes for the METTLER TOLEDO AC/DC adapter ecific data	. 119 . 120 . 120 <b>121</b> 121 123 <b>124</b> 124 125 126
	Troub 8.1 8.2 8.3 Techn 9.1 9.2	7.3.1 7.3.2 7.3.3  Pleshooting Error mes Error sym Putting in  Dical Data General d Explanato	Updating the software Restoring the software to the previous version Putting into operation after software update ssages uptoms to operation after fixing an error.  Idata bry notes for the METTLER TOLEDO AC/DC adapter ecific data S platform	. 119 . 120 . 120 . 121 121 123 124 125 126 . 126
	Troub 8.1 8.2 8.3 Techn 9.1 9.2	7.3.1 7.3.2 7.3.3  Pleshooting Error mes Error sym Putting in  Dical Data General d Explanato Model-spe	Updating the software  Restoring the software to the previous version  Putting into operation after software update  sages  ptoms  to operation after fixing an error.  data  bry notes for the METTLER TOLEDO AC/DC adapter ecific data  S platform Readability 1 mg, with MagicCube Draft Shield and SmartPan.	. 119 . 120 . 120 . 121 121 123 . 124 125 126 . 126 . 126
	Troub 8.1 8.2 8.3 Techn 9.1 9.2	Software of 7.3.1 7.3.2 7.3.3 Eleshooting Error mes Error sym Putting in General d Explanata Model-sperior of 9.3.1 9.3.1.1 9.3.1.2	Updating the software  Restoring the software to the previous version Putting into operation after software update  ssages uptoms to operation after fixing an error.  data  ory notes for the METTLER TOLEDO AC/DC adapter ecific data  S platform  Readability 1 mg, with MagicCube Draft Shield and SmartPan Readability 1 mg, with SmartPan	. 119 . 120 . 120 . 121 121 123 . 124 125 126 . 126 127
9	Troub 8.1 8.2 8.3 Techn 9.1 9.2	Software of 7.3.1 7.3.2 7.3.3 Eleshooting Error mes Error sym Putting in Mical Data General discussion Model-spin 9.3.1.1 9.3.1.2 9.3.1.3	Updating the software Restoring the software to the previous version Putting into operation after software update  ssages sptoms to operation after fixing an error.  data  ory notes for the METTLER TOLEDO AC/DC adapter ecific data S platform Readability 1 mg, with MagicCube Draft Shield and SmartPan Readability 1 mg, with SmartPan Readability 10 mg, with SmartPan Readability 10 mg, with SmartPan	. 119 . 120 . 120 . 121 121 123 . 124 125 126 . 126 . 126 . 127 128
	Troub 8.1 8.2 8.3 Techn 9.1 9.2	Software of 7.3.1 7.3.2 7.3.3 Seleshooting Error mes Error sym Putting in Dical Data General dexplanate Model-sperior Model-sperior 19.3.1.1 9.3.1.2 9.3.1.3 9.3.1.4	Updating the software Restoring the software to the previous version Putting into operation after software update  ssages Introms Ito operation after fixing an error.  Idata Dry notes for the METTLER TOLEDO AC/DC adapter ecific data S platform Readability 1 mg, with MagicCube Draft Shield and SmartPan Readability 1 mg, with SmartPan Readability 10 mg, with SmartPan Readability 10 mg, with SmartPan Readability 100 mg	119 120 121 121 121 123 124 125 126 126 127 128 130
	Troub 8.1 8.2 8.3 Techn 9.1 9.2	Software of 7.3.1 7.3.2 7.3.3 Pleshooting Error mes Error sym Putting in Data General d Explanato Model-sperior Model-sperior 9.3.1.1 9.3.1.2 9.3.1.3 9.3.1.4 9.3.2	Updating the software Restoring the software to the previous version Putting into operation after software update  ssages sptoms to operation after fixing an error.  data  bry notes for the METTLER TOLEDO AC/DC adapter ecific data S platform Readability 1 mg, with MagicCube Draft Shield and SmartPan Readability 1 mg, with SmartPan Readability 10 mg, with SmartPan Readability 10 mg, with SmartPan Readability 100 mg L platform	. 119 . 120 . 120 . 121 121 123 . 124 125 126 . 126 . 126 . 127 128 . 130 . 132
	Troub 8.1 8.2 8.3 Techn 9.1 9.2	Software of 7.3.1 7.3.2 7.3.3 Seleshooting Error mes Error sym Putting in Dical Data General dexplanate Model-sperior Model-sperior 19.3.1.1 9.3.1.2 9.3.1.3 9.3.1.4	Updating the software Restoring the software to the previous version Putting into operation after software update  ssages Introms Ito operation after fixing an error.  Idata Dry notes for the METTLER TOLEDO AC/DC adapter ecific data S platform Readability 1 mg, with MagicCube Draft Shield and SmartPan Readability 1 mg, with SmartPan Readability 10 mg, with SmartPan Readability 10 mg, with SmartPan Readability 100 mg	. 119 . 120 . 120 . 121 121 123 . 124 125 126 . 126 . 126 . 127 128 . 130 . 132

Table of Contents Precision Balances

	9.4 Dimensions		ns	135	
		9.4.1	S platform, readability 1 mg, with MagicCube Draft Shield and SmartPan	. 135	
		9.4.2	S platform, readability 1 mg, with SmartPan	. 136	
		9.4.3	S platform, readability 10 mg, with SmartPan	. 137	
		9.4.4	S platform, readability 100 mg	. 138	
		9.4.5	L platform, readability 100 mg / 1 g	. 139	
10	Dispo	sal		140	
11	Acces	sories and	Spare Parts	141	
	11.1	Accessori	9\$	141	
	11.2	Spare par	ts	147	
		11.2.1	Balances with S weighing platform	. 147	
		11.2.2	S platform miscellaneous	. 148	
		11.2.3	Balances with L weighing platform	. 148	
		11.2.4	L platform miscellaneous	. 149	
		11.2.5	MagicCube draft shield	. 150	
		11.2.6	Packaging	. 151	
		11.2.6.1	S platform with draft shield	151	
		11.2.6.2	S platform without draft shield	152	
		11.2.6.3	L platform, readability 10 mg	153	
		11.2.6.4	L platform, readability 100 mg and 1g	154	
	Index			155	

Precision Balances Table of Contents

5

Table of Contents Precision Balances

### 1 Introduction

Thank you for choosing a METTLER TOLEDO balance. The balance combines high performance with ease of use.

This document is based on the software version V 2.0.204.

When using this product you agree to the terms of the EULA.

#### **EULA**

The software in this product is licensed under the METTLER TOLEDO End User License Agreement (EULA) for Software.

www.mt.com/EULA

# 1.1 Further documents and information

www.mt.com/xsr-precision

This document is available in other languages online.

www.mt.com/XSR-precision-RM

Search for software downloads

www.mt.com/labweighing-software-download

Search for documents

www.mt.com/library

For further questions, please contact your authorized METTLER TOLEDO dealer or service representative.

www.mt.com/contact

### 1.2 Explanation of conventions and symbols used

#### Conventions and symbols

Key and/or button designations and display texts are shown in graphic or bold text, e.g., 🖍, Edit.

Note For useful information about the product.



Refers to an external document.

#### **Elements of instructions**

In this manual, step-by-step instructions are presented as follows. The action steps are numbered and can contain prerequisites, intermediate results and results, as shown in the example. Sequences with less than two steps are not numbered.

- Prerequisites that must be fulfilled before the individual steps can be executed.
- 1 Step 1
  - ⇒ Intermediate result
- 2 Step 2
- ⇒ Result

Precision Balances Introduction

# 1.3 Acronyms and abbreviations

Original term	Explanation
ASTM	American Society for Testing and Materials
EMC	Electromagnetic Compatibility
FCC	Federal Communications Commission
GWP	Good Weighing Practice
ID	Identification
LPS	Limited Power Source
MT-SICS	METTLER TOLEDO Standard Interface Command Set
NA	Not Applicable
OIML	Organisation Internationale de Métrologie Légale (International Organization of Legal Metrology)
RFID	Radio-frequency identification
RM	Reference Manual
RS (RS232C)	Recommended Standard (RS232C)
sd	Standard deviation
SELV	Safety Extra Low Voltage
SOP	Standard Operating Procedure
UM	User Manual
USB	Universal Serial Bus
USP	United States Pharmacopeia

# 1.4 Product range

# 1.4.1 XSR precision balances

# 1.4.1.1 S weighing platform

Balance	Models designation
The state of the s	Readability: 1 mg  • XSR303S  • XSR603S  • XSR1203S
ing.	Readability: 1 mg  • XSR303SN  • XSR603SN

Introduction Precision Balances

Balance	Models designation
	Readability: 10 mg
1-5-	• XSR2002S
	• XSR4002S
2007	• XSR6002S
	• XSR6002SDR
	• XSR1202S
	• XSR10002S
	Readability: 100 mg
	• XSR4001S
	• XSR6001S
00,	• XSR8001S
	• XSR10001S

### 1.4.1.2 L weighing platform

Balance	Models designation
	Readability: 100 mg
	• XSR10001L
	• XSR16001L
- CO	• XSR32001L
	• XSR32001LDR
	Readability: 1 g
	• XSR16000L
	• XSR32000L

# 1.5 Compliance information

National approval documents, e.g., the FCC Supplier Declaration of Conformity, are available online and/or included in the packaging.

► http://www.mt.com/ComplianceSearch

Contact METTLER TOLEDO for questions about the country-specific compliance of your instrument.

www.mt.com/contact

#### United States of America

This equipment has been tested and found to comply with the limits for a **Class A** digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- 1. This device may not cause harmful interference.
- 2. This device must accept any interference received, including interference that may cause undesired operation.

Precision Balances Introduction

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### Canada

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- 1. This device may not cause interference.
- 2. This device must accept any interference, including interference that may cause undesired operation of the device.

Introduction Precision Balances

## 2 Safety Information

Two documents named "User Manual" and "Reference Manual" are available for this instrument.

- The User Manual is printed and delivered with the instrument.
- The electronic Reference Manual contains a full description of the instrument and its use.
- Keep both documents for future reference.
- Include both documents if you transfer the instrument to other parties.

Only use the instrument according to the User Manual and the Reference Manual. If you do not use the instrument according to these documents or if the instrument is modified, the safety of the instrument may be impaired and Mettler-Toledo GmbH assumes no liability.

## 2.1 Definitions of signal words and warning symbols

Safety notes contain important information on safety issues. Ignoring the safety notes may lead to personal injury, damage to the instrument, malfunctions and false results. Safety notes are marked with the following signal words and warning symbols:

#### Signal words

**DANGER** A hazardous situation with high risk, resulting in death or severe injury if not avoided.

WARNING A hazardous situation with medium risk, possibly resulting in death or severe injury if

not avoided.

**CAUTION** A hazardous situation with low risk, resulting in minor or moderate injury if not avoided.

**NOTICE** A hazardous situation with low risk, resulting in damage to the instrument, other

material damage, malfunctions and erroneous results, or loss of data.

### Warning symbols



General hazard: read the User Manual or the Reference Manual for information about the hazards and the resulting measures.



Electrical shock



Notice

11

## 2.2 Product-specific safety information

### Intended use

This instrument is designed to be used by trained staff. The instrument is intended for weighing purposes. Any other type of use and operation beyond the limits of use stated by Mettler-Toledo GmbH without consent from Mettler-Toledo GmbH is considered as not intended.

#### Responsibilities of the instrument owner

The instrument owner is the person holding the legal title to the instrument and who uses the instrument or authorizes any person to use it, or the person who is deemed by law to be the operator of the instrument. The instrument owner is responsible for the safety of all users of the instrument and third parties.

METTLER TOLEDO assumes that the instrument owner trains users to safely use the instrument in their workplace and deal with potential hazards. METTLER TOLEDO assumes that the instrument owner provides the necessary protective gear.

Precision Balances Safety Information

### Safety notes



## **MARNING**

## Death or serious injury due to electric shock

Contact with parts that carry a live current can lead to death or injury.

- 1 Only use the METTLER TOLEDO power supply cable and AC adapter designed for your instrument.
- 2 Connect the power cable to a grounded power outlet.
- 3 Keep all electrical cables and connections away from liquids and moisture.
- 4 Check the cables and the power plug for damage and replace damaged cables and power plugs.



12

# **NOTICE**

### Damage to the instrument due to the use of unsuitable parts

Using unsuitable parts with the instrument can damage the instrument or cause it to malfunction.

- Only use parts from METTLER TOLEDO that are intended to be used with your instrument.

Safety Information Precision Balances

# 3 Design and Function

# 3.1 Function description

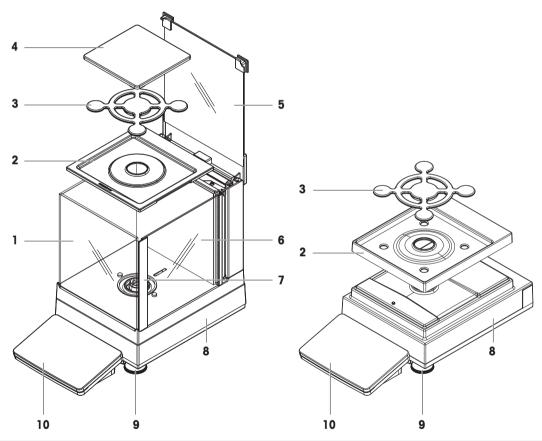
The XSR line comprises a range of balances that differ from each other due to their weighing range and resolution. The balances of the XSR line combine a large number of weighing and adjustment possibilities with a simple operation handling.

The following features are common to all models of the XSR precision line:

- 4.3-inch capacitive color TFT-touch screen.
- Fully automatic adjustment using internal weights.
- Various methods that can be defined individually.
- · Various routine tests that can be defined individually.
- History about performed tests and adjustments.
- Built-in level sensor and leveling aid for fast and easy leveling.

## 3.2 Overview S weighing platform

## 3.2.1 Balances with readability 1 mg

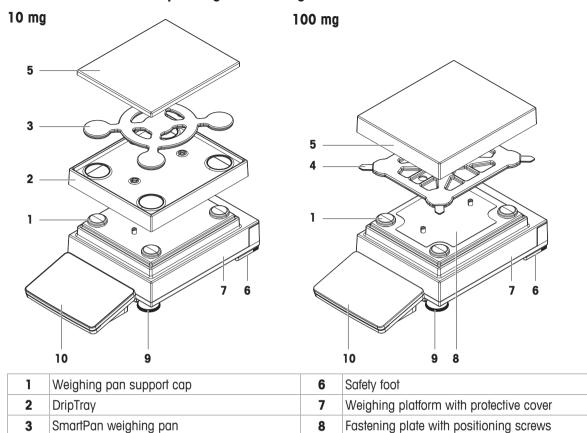


1	MagicCube Draft Shield	6	MagicCube Draft Shield side door
2	DripTray	7	MagicCube Draft Shield side door handler
3	SmartPan weighing pan	8	Weighing platform with protective cover
4	Weighing pan	9	Leveling foot
5	MagicCube Draft Shield top door	10	Terminal with protective cover

13

Precision Balances Design and Function

## 3.2.2 Balances with readability 10 mg and 100 mg



9

10

Leveling foot

Terminal with protective cover

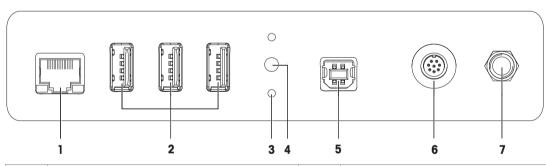
## 3.2.3 Interface board

14

**4 5** 

Weighing pan support

Weighing pan with protective cover

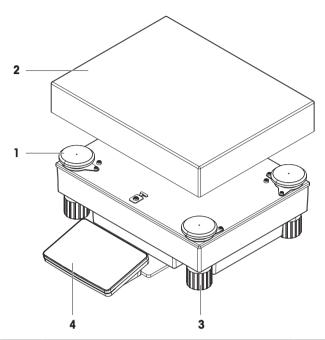


1	Ethernet port	5	USB-B port (to host)
2	USB-A ports (to device)	6	Socket for terminal connection cable
3	Fixations for optional terminal stand	7	Socket for AC/DC adapter
4	Service seal		

Design and Function Precision Balances

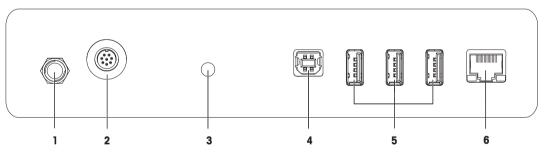
# 3.3 Overview L weighing platform

# 3.3.1 Balances with readability of 100 mg and 1 $\,\mathrm{g}$



1	1 Weighing pan support cap		Leveling foot	
2	2 Weighing pan		Terminal with protective cover	

## 3.3.2 Interface board

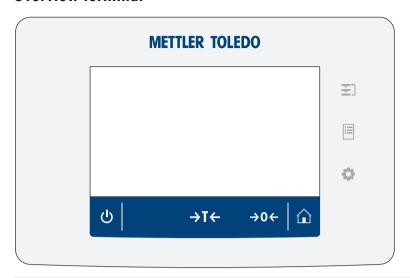


1	Socket for AC/DC adapter	4	USB-B port (to host)
2	Socket for terminal connection cable	5	USB-A ports (to device)
3	Service seal	6	Ethernet port

Precision Balances Design and Function

15

## 3.4 Overview terminal



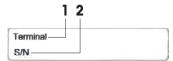
	Name	Description	
₹1	Methods	Opens the section <b>Methods</b> .	
ΙΞ	Protocol	Opens the section <b>Protocol</b> .	
O	Balance menu	Opens the section Balance menu.	
	Home	To return from any menu level to the main weighing screen.	
<b>→0</b> ←	Zero	Zeroes the balance.  The balance must always be zeroed before starting the weighing process. After zeroing, the balance sets a new zero point.	
<b>→T</b> ←	Tare	Tares the balance. This function is used when the weighing process involves containers. After taring the balance, the screen shows Net which indicates that all displayed weights are net.	
Ф	ON/OFF	Switches the balance on/off. By tapping $\textcircled{0}$ the balance is not completely switched off but goes into standby mode. To switch the balance completely off, it must be unplugged from the power supply.  Note Do not disconnect the balance from the power supply unless the balance is not used for an extended period of time.	

# 3.5 Overview type plate

The information on the type plate helps to identify the balance and terminal.

### Terminal type plate

The terminal type plate is located on the terminal and contains the following information:



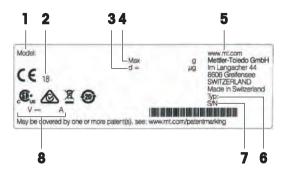
- 1. Terminal type
- 2. Terminal serial number

## Weighing unit type plate

16

The balance type plate is located on the side of the weighing unit and contains the following information:

Design and Function Precision Balances

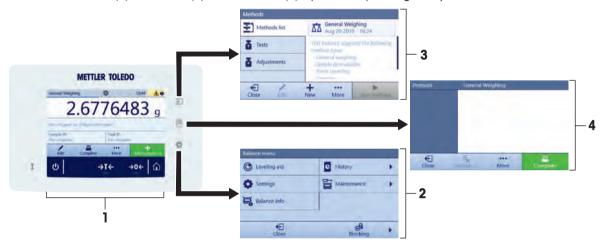


- 1. Designation of balance model
- 2. Year of manufacture
- 3. Readability
- 4. Maximum capacity
- 5. Manufacturer
- 6. Balance type
- 7. Serial number
- 8. Power supply

### 3.6 User interface

### 3.6.1 Main sections at a glance

The main weighing screen (1) is the central navigation point where all the menus and settings can be found. The **Balance menu** (2), **Methods** (3) and **Protocol** (4) open when pressing the symbols on the terminal.



#### See also

- Main weighing screen ▶ Page 17
- Work screen "Balance menu" ▶ Page 18
- Work screen "Methods" ▶ Page 18
- Work screen "Protocol" ▶ Page 19

### 3.6.2 Main weighing screen

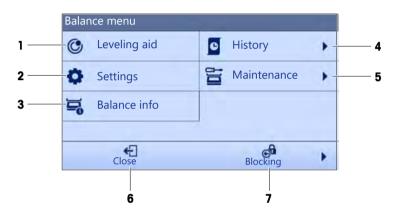


Precision Balances Design and Function

17

	Name	Description
1	Weighing value field	Shows the current weighing value.
2	Level indicator	Indicates if the balance is leveled (green) or not (red).
3	Warning and error message area	Shows current warning and/or error messages.
4	Button Add to protocol	Adds the result to the protocol.  Depending on the selected method, the button can have different functions.
5	Weighing action field	Contains actions referring to the current task.
6	Method information area	Contains information about the sample, method or task IDs.
7	SmartTrac	Used as a weighing aid to define a target weight with upper and lower tolerances.
8	Weighing value area	Shows the results of the current weighing process.
9	Method name	Shows the name of the current method.

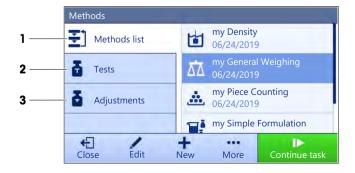
## 3.6.3 Work screen "Balance menu"



	Name	Description
1	Leveling aid	Opens the leveling dialog.
2	History	Opens the history dialog.
3	Balance info	Shows Balance information.
4	Settings	Opens the complete settings dialog.
5	Maintenance Opens the balance maintenance dialog.	
6	Exit / Block balance	Opens the logout / block balance dialog.

### 3.6.4 Work screen "Methods"

18



Design and Function Precision Balances

	Name	Description		
1	Methods list	Lists the methods already defined by the user.		
		Methods can be edited, cloned, started or created.		
2 Tests Working with routine test.				
		Sensitivity tests		
		Repeatability tests		
		Eccentricity tests		
		Routine test can be edited, started or created.		
3	Adjustments	Lists all internal or external adjustments. Adjustment can be edited, created and started.		

## 3.6.5 Work screen "Protocol"



	Name	Description	
1	Result state	Shows the state of the weighing process.	
2	Sample ID	Shows the Sample ID of the weighing.	
3	<b>3</b> Gross weight Shows the gross weight.		
		<b>D</b> : indicates that the value was unstable.	
		*: indicates that the value was calculated.	
4	Timestamp	Shows the individual timestamp of each weighing item.	
5	Balance status	Shows stability, level state of the balance, minimum weight, tolerance state and test and adjustment state.	
6	Complete	Opens the dialog Complete task.	
		Print task label manually	
Print protocol manually			
Export protocol manually		Export protocol manually	
7	More	Opens the dialog <b>More</b> .	
		Start adjustment	
		Change display unit	
		Configure tare	
		Configure zero	
		Save as method with templates (only available for methods with the option Templates)	

Precision Balances Design and Function

19

	Name	Description	
8	<b>8</b> Exclude result Excludes the current protocol result. A comment can be added to the excluresult, e.g., to describe the reason of the exclusion.		
		Depending on the format of the protocol printout, the excluded result can be printed or not.	
9	Close	Closes the protocol and goes back to the main weighing screen.	

### 3.6.6 Icons and symbols

## 3.6.6.1 System status icons

System messages can appear due to a user action, a user input or a system process. Some messages leave it up to the user to choose upon acting, they will disappear after acknowledging. Other messages remain persistent, so the user can defer them but eventually has to handle them. These messages can be seen in the main status bar on the upper right-hand side of the display.

Icon	Name	Description
<b>O</b>	The balance is out of level.	The balance must be leveled. Information about leveling the balance can be found in the section Leveling the balance. When the balance is leveled the symbol   appears.
0	Information	Information messages appear due to user actions or system processes and offer opportunities that are related to the current action or process.
	Warning	Warning messages appear due to user actions or system processes that could lead to a problem that can be prevented.
	Error	Error messages appear due to user actions or system processes that have failed. It is mostly still possible to handle such a problem.

## 3.6.6.2 Weighing status icons

Weighing status icons appear due to the weight value matching certain quality criteria. The information on the status can be looked by tapping on any of the visible weighing status icons.

Icon	Name	Description
0	Stability indicator	When the stability indicator appears, the balance is not stable. Make sure that the balance is placed at an adequate location. Information about the adequate location can be found in the section Selecting the location.
Net	Net indicator	Appears when the tare key has been pressed and the tare weight has been subtracted.
<	Minimum weight violation	The current weight value undershoots the defined minimum weight definition. Make sure that the weight is not below the minimum weight.
*	Calculated value	The current weight value is calculated. This symbol only appears in the weighing value area when a container has been used with the function <b>Pretare</b> .
GWP X	Balance invalid	The current balance configuration is invalid or quality criteria have not been fulfilled according to the GWP approved definition.
GWP	Weight not ready	The current weight measurement is not ready according to the GWP approved definition. This can be caused by undershooting the minimum weight, an overload or an underload.

Design and Function Precision Balances

GWP	Weight ready	The current weight measurement is ready according to the GWP approved definition. It can be added to the protocol.			
4	External ionizer discharging	The external ionizer is currently discharging.			

Precision Balances Design and Function

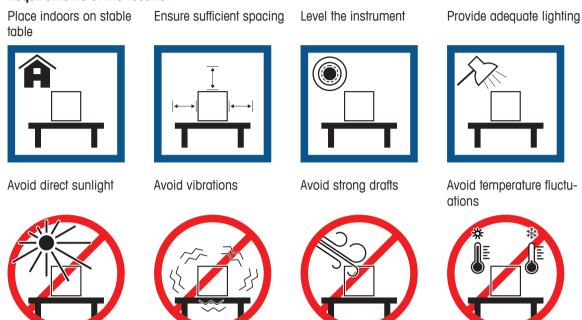
21

## 4 Installation and Putting into Operaton

### 4.1 Selecting the location

A balance is a sensitive precision instrument. The location where it is placed will have a profound effect on the accuracy of the weighing results.

### Requirements of the location



Sufficient spacing for balances: > 15 cm all around the instrument Take into account the environmental conditions. See "Technical Data".

## 4.2 Unpacking the balance

Open the balance packaging and check for transportation damage or missing parts. Please inform a METTLER TOLEDO service representative in the event of missing or defective parts.

METTLER TOLEDO recommends retaining the original box with its packaging elements. Use the packaging elements to store and to transport the balance.

## 4.3 Scope of delivery

## 4.3.1 S weighing platform

Components	1 mg with MagicCube Draft Shield	1 mg without MagicCube Draft Shield	10 mg	0.1 g
Weighing platform with protective cover	✓	✓	✓	✓
Terminal with protective cover	✓	✓	✓	✓
Terminal holder	✓	✓	✓	✓
Terminal connection cable (pre-assembled)	<b>√</b>	✓	✓	<b>✓</b>
MagicCube Draft Shield with additional draft shield door and DripTray	✓	_	_	_
Weighing pan 127 × 127 mm	✓	_	_	_
Weighing pan 172 × 205 mm	_	_	✓	_
Weighing pan 190 × 223 mm	_	_	_	✓
SmartPan weighing pan	✓	✓	✓	_
Weighing pan support	_	_	_	✓
DripTray	✓	✓	✓	_
Weighing hook for below-the-balance weighing	✓	✓	✓	✓
AC/DC adapter	✓	✓	✓	✓
Power cable (country-specific)	✓	✓	✓	✓
User Manual	✓	✓	✓	<b>✓</b>
Production certificate	✓	✓	✓	<b>✓</b>
CE declaration of conformity	✓	✓	✓	✓

## 4.3.2 L weighing platform

Components	0.1 g	1 g
Weighing platform	<b>√</b>	✓
Terminal with protective cover	<b>√</b>	✓
Terminal support (pre-assembled)	<b>√</b>	✓
Terminal connection cable	<b>√</b>	✓
Weighing pan	<b>√</b>	✓
AC/DC adapter	<b>√</b>	✓
Power cable (country-specific)	<b>√</b>	✓
User Manual	<b>√</b>	✓
Production certificate	<b>√</b>	✓
CE declaration of conformity	✓ <b>/</b>	✓

## 4.4 Assembling the balance

### 4.4.1 Models with S weighing platform

### 4.4.1.1 Attaching the terminal to the weighing platform

The terminal is usually placed in front of the weighing platform on the terminal support. The terminal can also be placed individually, e.g. beside the weighing platform or it can be fixed on an additional terminal stand.

# NOTICE

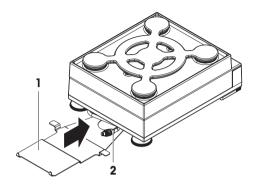


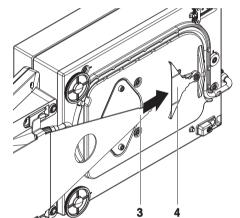
## Damage to the balance

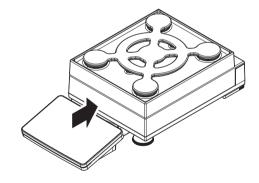
The weighing platform and the terminal are not safely fixed by the terminal support and may fall off when carrying.

- Remove the terminal from the weighing platform and place it on the weighing pan when carrying the balance.
- 1 Place the weighing platform on a flat surface.
- 2 Position the terminal support (1) in front of the weighing platform. The plug of the pre-mounted terminal connection cable (2) must lie between the terminal support (1) and the weighing platform.
- 3 Push the terminal support (3) towards the weighing platform. The far end of the terminal support (3) must be pushed into the lock element (4) at the bottom of the weighing platform.
- 4 Use the terminal connection cable to connect the terminal to the weighing platform.

- 5 Place the terminal on top of the terminal support.
- 6 Push the terminal towards the weighing platform until the terminal locks into the terminal support.
- ⇒ The terminal is mounted and connected to the weighing platform.







### 4.4.1.2 Installing the MagicCube Draft Shield

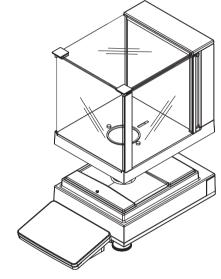
Balances with readability of 1 mg with MagicCube Draft Shield and SmartPan weighing pan



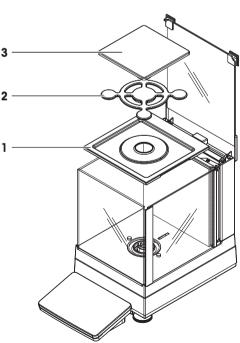
## **NOTICE**

Damage to weighing platform and the MagicCube Draft Shield when carrying The U-shaped MagicCube Draft Shield glass is not fixed to the MagicCube Draft Shield housing.

- 1 Always close the cover before carrying the MagicCube Draft Shield.
- 2 Always hold the MagicCube Draft Shield on the housing underneath the glass. Always hold the MagicCube Draft Shield with both hands and on both sides and keep it in a horizontal position.
- 1 Place the MagicCube Draft Shield on top of the weighing platform.



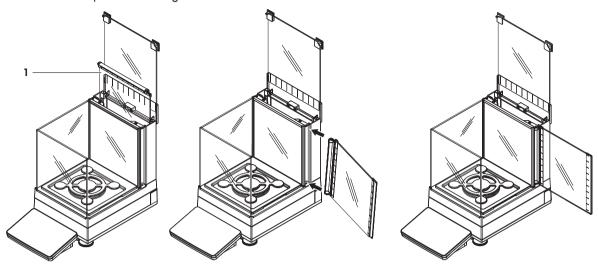
- 2 Open the MagicCube Draft Shield top door.
- 3 Place the DripTray (1) into the MagicCube Draft Shield.
- 4 Place the SmartPan weighing pan (2) into the MagicCube Draft Shield on top of the DripTray (1).
- 5 The weighing pan (3) is optional and can be placed into the MagicCube Draff Shield on top of the SmartPan weighing pan (2).



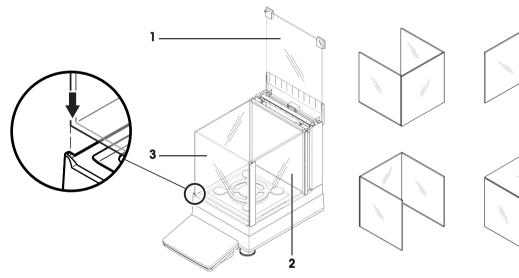
### Install the additional MagicCube Draft Shield door

1 Open the MagicCube Draft Shield top door.

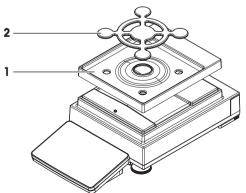
- 2 Take the additional MagicCube Draft Shield door (1) out of the rear panel.
- 3 Insert the additional MagicCube Draft Shield door into the housing from the left or the right side.
- 4 Insert the additional MagicCube Draft Shield door into the fixation holes at the bottom of the housing and then at the top of the housing.



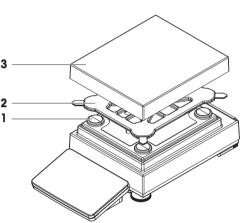
The MagicCube Draft Shield for XSR models consists of a fixed draft shield housing with top door (1), side door (2) and a flexible U-shaped draft shield glass (3). The U-shaped draft shield glass (3) can be placed individually on top of the draft shield housing. The side door can be found in the draft shield housing.



- 1 Place the DripTray (1) on top of the weighing platform.
- 2 Place the SmartPan weighing pan (2) on top of the DripTray (1).



- 1 Place the 4 weighing pan support caps (1) on top of the weighing platform.
- 2 Place the DripTray (2) on top of the weighing platform.
- 3 Place the SmartPan weighing pan (3) on top of the 4 weighing pan support caps (1).
- 4 The weighing pan (4) is optional and can be placed on top of the SmartPan weighing pan (3).
- 1 Place the 4 weighing pan support caps (1) on top of the weighing platform.
- 2 Place the weighing pan support (2) on top of the 4 weighing pan support caps (1).
- 3 Place the weighing pan with the protective cover (3) on top of the weighing pan support (2).

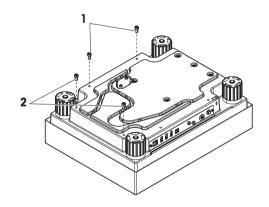


## 4.4.2 Models with L weighing platform

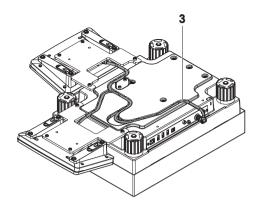
### 4.4.2.1 Attaching the terminal to the weighing platform

The terminal can be attached to the long side or to the short side of the L weighing platform.

- 1 Turn the weighing platform upside down.
- 2 Dismantle the screws (1) on the long side or the screws (2) on the short side of the weighing platform.
- 3 Connect the terminal to the weighing platform with the terminal connection cable.
- 4 Attach the terminal support to the long side or to the short side of the weighing platform. Fix the terminal support with the screws from the weighing platform.



5 Insert the terminal connection cable (3) into the cable channel.



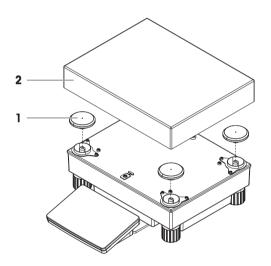
## Note

When inserting the terminal connection cable into the cable channel, the terminal connection cable must be inserted simultaneously from both directions. The terminal connection cable must not have any play between the plug and the cable channel (see picture).

6 Turn the weighing platform.

### 4.4.2.2 Balances 0.1 g and 1 g

- 1 Place the weighing pan support caps (1) on top of the weighing platform.
- 2 Place the weighing pan (2) on top of the weighing pan support caps (1).



## 4.5 Putting into operation

### 4.5.1 Connecting the balance



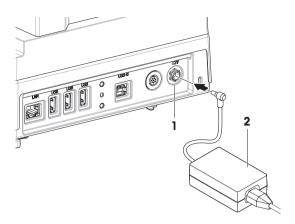
### **↑** WARNING

### Death or serious injury due to electric shock

Contact with parts that carry a live current can lead to death or injury.

- 1 Only use the METTLER TOLEDO power supply cable and AC adapter designed for your instrument.
- 2 Connect the power cable to a grounded power outlet.
- 3 Keep all electrical cables and connections away from liquids and moisture.
- 4 Check the cables and the power plug for damage and replace damaged cables and power plugs.

- Install the cables in such a way that they cannot be damaged or interfere with operation.
- 2 Insert the plug of the AC/DC adapter (2) into the power inlet of the instrument (1).
- 3 Secure the plug by firmly tightening the knurled nut.
- 4 Insert the plug of the power cable into a grounded power outlet that is easily accessible.
- ⇒ The balance performs a self-test after connection to the power supply and is then ready to use.



## Note

Do not connect the instrument to a power outlet controlled by a switch. After switching on the instrument, it must warm up before giving accurate results.

### 4.5.2 Switching on the balance

### **EULA (End User License Agreement)**

When the balance is switched on the first time, the EULA (End User License Agreement) appears on the screen.

- 1 Read the conditions.
- 2 Tap I accept the terms in the license agreement, and confirm with  $\checkmark$  OK.

#### Warming up

Before the balance gives reliable results, it must warm up. This takes at least 30 minutes after connecting the balance. When the balance is switched on from standby, it is ready immediately.

- The balance has warmed up.
- Press (<sup>1</sup>).
  - ⇒ The main weighing screen appears.

When the balance is switched on, the main weighing screen appears. The display will always show the screen of the method last used before switching it off.

### 4.5.3 Leveling the balance

Exact horizontal and stable positioning are essential for repeatable and accurate weighing results.

If the message Balance is out of level appears:

- 1 Tap ▶ Level the balance.
  - ⇒ The Leveling aid opens.
- 2 Follow the instructions from the wizard.

The leveling aid can also be accessed through the balance menu:

Navigation: ♥ Balance menu > ③ Leveling aid

### 4.5.4 Setting the balance to standby mode

The balance can be set to standby mode by holding  $\mathbf{\Phi}$ . The standby mode can be finished by holding  $\mathbf{\Phi}$  again.

### 4.5.5 Switching off the balance

To completely switch off the balance it must be disconnected from the mains. By holding  $\circlearrowleft$  the balance goes only into standby mode.



When the balance was completely switched off for some time, it must warm up before it can be used.

#### See also

Switching on the balance ▶ Page 29

## 4.6 Performing a simple weighing

## 4.6.1 Zeroing the balance

- 1 Open the draft shield, if applicable.
- 2 Clear the weighing pan.
- 3 Close the draft shield, if applicable.
- 4 Press  $\rightarrow 0 \leftarrow$  to zero the balance.
- ⇒ The balance is zeroed.

### 4.6.2 Taring the balance

If a sample vessel is used, the balance must be tared.

- 1 Open the draft shield, if applicable.
- 2 Clear the weighing pan.
- 3 Close the draft shield, if applicable.
- 4 Press  $\rightarrow 0 \leftarrow$  to zero the balance.
- 5 Open the draft shield, if applicable.
- 6 Place the sample vessel on the weighing pan.
- 7 Close the draft shield, if applicable.
- 8 Press  $\rightarrow$ **T** $\leftarrow$  to tare the balance.
- ⇒ The balance is fared. The icon Net appears.

### 4.6.3 Performing a weighing

- 1 Open the draft shield, if applicable.
- 2 Place the weighing object into the sample vessel.
- 3 Tap + Add to protocol if you want to report the weighing result.
- ⇒ The weight value is listed in the **Protocol**.

### 4.6.4 Completing the weighing

- 1 To save the weighing protocol, tap **Complete**.
  - ⇒ The window **Complete task** opens.
- 2 Select an option to save or print the protocol.
  - ⇒ The respective menu window opens.
- 3 Follow the instructions of the wizard.
- 4 Tap **√Complete**
- ⇒ The **Protocol** is saved/printed and then cleared.

### 4.7 Transporting, packing and storing



### NOTICE

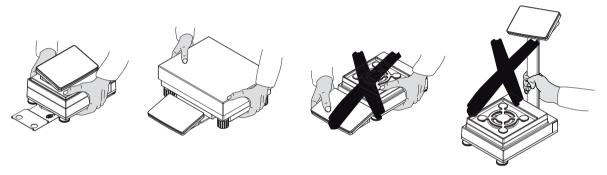
### Damage to the draft shield, terminal or additional terminal stand

Do not hold the balance only by the glass draft shield, by the terminal or by the terminal stand when carrying the balance.

 Remove the terminal of the S weighing platform from the terminal support and place the terminal on top of the weighing pan. Always hold the weighing platform with both hands when carrying the balance.

### 4.7.1 Transporting the balance over short distances

- 1 Disconnect the balance from the AC/DC adapter.
- 2 Unplug all interface cables if necessary.
- 3 Remove the terminal from the terminal support element and place the terminal on top of the weighing platform (only for S weighing platform).
- 4 Hold the weighing platform with both hands.
- 5 Carry the balance in horizontal position to the new location.



## 4.7.2 Transporting the balance over long distances

METTLER TOLEDO recommends using the original packaging for transportation or shipment of the balance or balance components over long distances. The elements of the original packaging are developed specifically for the balance and its components and ensure maximum protection during transportation.

### 4.7.3 Packing and storing

### Packing the balance

Store all parts of packaging in a safe place. The elements of the original packaging are developed specifically for the balance and its components, and ensures maximum protection during transportation and storage.

#### Storing the balance

Only store the balance under the following conditions:

- Indoor and in the original packaging
- · According to the environmental conditions, see "Technical Data"



When storing for longer than 6 months, the rechargeable battery may become empty (only date and time get lost).

#### See also

Technical Data ▶ Page 124

## 4.8 Weighing below the balance

All models with S weighing platform are equipped with a weighing hook for below-the-balance weighing. Models with L weighing platform are not equipped with a weighing hook. The weighing hook for L weighing platforms can be ordered as an accessory.

#### See also

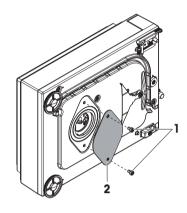
Dimensions ▶ Page 135

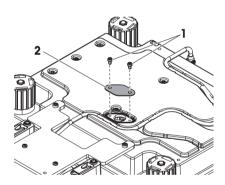
### 4.8.1 S weighing platform

- A weighing table or workbench is available, through which the weighing hook can be accessed.
- 1 Disconnect the balance from the AC/DC adapter.
- 2 Remove all elements from the weighing platform, e.g., draft shield, terminal and weighing pan.
- 3 Turn the weighing platform to its side.
- 4 Remove the screws (1) and remove the weighing hook cover (2).
- 5 Turn the weighing platform back on its feet and reinstall all components.
- ⇒ The weighing hook is accessible and can be used for below-the-balance weighing.

## 4.8.2 L weighing platform

- A weighing table or workbench is available, through which the weighing hook can be accessed.
- 1 Disconnect the balance from the AC/DC adapter.
- 2 Remove all elements from the weighing platform, e.g., draft shield, terminal and weighing pan.
- 3 Turn the weighing platform upside down.
- 4 Remove the screws (1) and remove the weighing hook cover (2).
- 5 Install the weighing hook.
- 6 Turn the weighing platform back on its feet and reinstall all components.
- ⇒ The weighing hook is accessible and can be used for below-the-balance weighing.



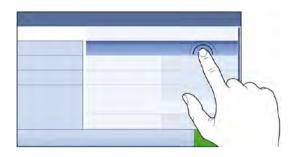


# **5** Operation

### 5.1 Touch screen

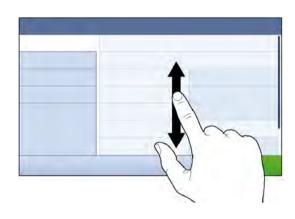
## 5.1.1 Selecting or activating an item

- Tap the item or function to be selected or activated.



## 5.1.2 Scrolling

Move the list up/down.



33

## 5.1.3 Entering characters and numbers

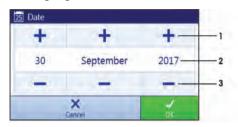
When tapping on fields that require letters, numbers, or special characters, a keyboard appears on the display.



	Name	Description
1	Input field	Shows the data that has been entered.
2	Delete	Deletes the character left of the current curser position. The curser can be positioned by using the touch screen.
3	Confirm	Confirms the entered data.
4	Discard	Closes the keyboard dialog.
5	Numbers and special characters	Switches into the special character mode.
6	Shift	Switches between lower or upper case letters.

Precision Balances Operation

### 5.1.4 Changing the date and time



	Name	Explanation
1	Plus button	Increment
2	Display field	Shows the defined time or date.
3	Minus button	Decrement



The format of date and time can be defined in the settings via the options Date format and Time format.

#### See also

Date / Time / Language / Format ▶ Page 63

### 5.2 Methods

A weighing method is an application for carrying out specific weighing tasks. The balance offers the method "General Weighing" with default parameters. You have the possibility to create a maximum of 50 methods and edit the methods. You can use these methods for your weighing task or edit them according to your requirements. Methods can also be deleted or cloned.

To support you while configuring new methods, a configuration wizard leads you through the whole process.

#### 5.2.1 Methods overview

The section **Methods list** provides an overview of all methods already created on the balance. In this section, new methods can be defined and existing methods can be edited, cloned or deleted. It is also the starting point for using any method in a weighing procedure.

#### 

The following methods are available:

- 🛣 General Weighing (see Method General weighing)
- **6** Interval weighing (see Method Interval weighing)
- **Piece counting** (see Method Piece counting)
- **Simple formulation** (see Method Simple formulation )
- Titration (see Method Titration )
- **Density determination** (see Method Density determination )

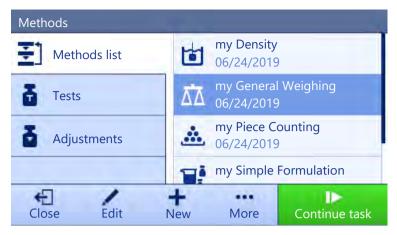
### 5.2.2 Method "General weighing"

The method **General Weighing** offers the basic weighing functions (zeroing, taring, weighing). The method is used for simple weighing tasks or to perform a series of check weighing or dosing.

The parameters of the weighing item, e.g., sample ID and target weight, can either be entered manually or by using a template. Therefore two different methods exist:

- General Weighing: Select this method if you want to work without pre-defined templates.
- General Weighing with templates: Select this method if you want to use a template to define the
  parameters individually for each single weighing item. Templates are particularly useful when the weighing
  task consists of a series of weighings, each with its own individual parameters, such as target weight,
  tolerances, etc. For further information, see [Using method templates > Page 42].

Operation Precision Balances



You have the possibility to start with method factory setting parameter or to create a new method with changed method parameter.

For details about method settings:

#### See also

■ Settings: method "General weighing" ▶ Page 67

#### 5.2.2.1 Creating a method "General weighing"

Navigation: ₹ Methods > ₹ Methods list

- 1 Tap + New in the action bar.
  - ⇒ The method wizard opens, starting at 1. Method type.
- 2 Tap Method type and select the method type General Weighing or General Weighing with templates.
- 3 Tap → Next.
  - ⇒ The method wizard opens the section **2. Identification**.
- 4 Define the **Method name** and **Result description** and tap → **Next**.
  - ⇒ The method wizard opens the section **3. Configuration**.
- 5 Select a **Tolerance profile** and tap → **Next**.
  - ⇒ The method wizard opens the section **4. Save**.
  - ⇒ When selected **General Weighing with templates**, the wizard opens the optional section **4. Templates**.
- 6 Select a template from the list and define the **Sample ID**, **Unit**, **Target weight**, **—Tolerance**, and **+Tolerance**. Tap → **Next**.
  - ⇒ The method wizard opens the last section **5. Save**.
- 7 Tap **Y** Finish to save the new method.
- ⇒ The method has been created and appears in the list.

#### 5.2.2.2 Performing a "General weighing"

This section describes a **General Weighing** example step by step. Depending on the defined settings and weighing objects, the procedure can be different from this example.

- 1 Open the **Methods** section.
- 2 Select a method from the **Methods list** or define a new method.
- 3 Tap ▶ Start method.
  - ⇒ The main weighing screen appears with the selected method.
- 4 Press → 0 ← to zero the balance.
- 5 Open the draft shield (if applicable) and place the weighing object on the weighing pan.
- 6 Close the draft shield (if applicable) and wait until the weight stabilizes.
  - ⇒ The weighing starts with **Capturing weight...**.

Precision Balances Operation

#### 7 Tap + Add to protocol.

- ⇒ The weighing result is saved to the **Protocol**.
- 8 When the weighing process is finished, tap **Example te** in the action bar.
  - ⇒ The window **Complete task** opens. The task-specific information can be printed on a label printer. The **Protocol** can be printed manually or automatically (depending on the method settings).
- ⇒ The task **General Weighing** was successfully completed.



It is possible to exclude a weighing results from the protocol by opening the **Protocol** and tapping on **Exclude** result.

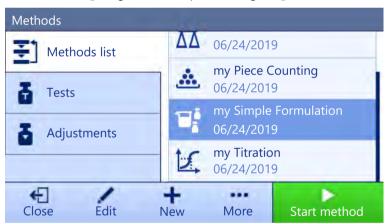
The window **Complete task** always appears after completing the task, even if the results are saved automatically.

# 5.2.3 Method "Simple formulation"

With the method **Simple formulation** the concentration of a substance can automatically be calculated.

The parameters of the weighing item, e.g., sample ID and target weight, can either be entered manually or by using a template. Therefore two different methods exist:

- **Simple formulation**: Select this method if you want to weigh a single component in a volumetric flask and have the concentration calculated automatically.
- Simple formulation with templates: Select this method if you want to follow a predefined solution recipe of
  one or several components. Templates are particularly useful when the weighing task consists of a series of
  weighings, each with its own individual parameters, such as target weight, tolerances, etc. For further information, see [Using method templates > Page 42].



For details about method settings:

#### See also

■ Settings: method "Simple formulation" ▶ Page 77

#### 5.2.3.1 Creating a method "Simple formulation"

Navigation: ₹ Methods > ₹ Methods list

- 1 Tap + New in the action bar.
  - ⇒ The method wizard opens, starting at 1. Method type.
- 2 Tap Method type and select the method type Simple formulation or Simple formulation with templates.
- 3 Tap → Next.

36

- ⇒ The method wizard opens the section 2. Identification.
- 4 Define the **Method name** and **Result description** and tap → **Next**.
  - ⇒ The method wizard opens the section **3. Configuration**.

- 5 Select the options for Calculate concentration per component, Calculate amount of component and set a Tolerance profile.
- 6 Tap → Next.
  - ⇒ The method wizard opens the section **4. Save**.
  - ⇒ When selected Simple formulation with templates, the wizard opens the optional creating section 4. Templates.
- 7 Select a template from the list and define the Sample ID, Unit, Target weight, —Tolerance, and +Tolerance. Tap → Next.
  - ⇒ The method wizard opens the last section **5. Save**.
- 8 Tap **Finish** to save the new method.
- ⇒ The method has been created and appears in the list.

### 5.2.3.2 Performing a "Simple formulation"

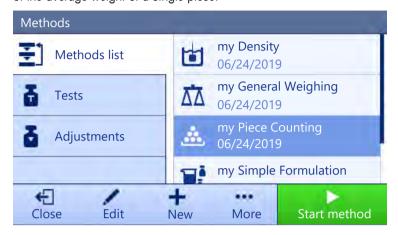
This example describes how to perform a simple formulation with two different components. It explains the basic functions of the method without the use of any templates. Advanced functions such as the calculation of the concentration of a component can be defined in the method settings.

- 1 Open the **Methods** section.
- 2 Select a method from the **Methods list** or define a new method.
- 3 Tap ▶ Start method.
  - ⇒ The main weighing screen appears with the selected method.
- 4 Define the target weight and the tolerance limits for the first component.
- 5 Select **Component ID** to define the first component.
- 6 Select Task ID to define the whole task.
- 7 Press  $\rightarrow 0 \leftarrow$  to zero the balance.
- 8 Open the draft shield (if applicable) and place the weighing object on the weighing pan.
- 9 Press  $\rightarrow$ **T** $\leftarrow$  to tare the balance.
- 10 Open the draft shield (if applicable) and place the first component in the sample vessel.
  - ⇒ The measurement starts.
- 11 Tap + Add to protocol.
  - ⇒ The weighing result is saved to the **Protocol**.
- 12 Define the target weight and the tolerance limits for the second component.
- 13 Select **Component ID** to define the second component.
- 14 Open the draft shield (if applicable) and place the second component in the sample vessel.
- 15 Tap + Add to protocol.
  - ⇒ The weighing result is saved to the **Protocol**.
- 16 Tap **Complete** and select if you want to print or export the task protocol.
- ⇒ The weight task is completed and the balance returns to the main weighing screen.

Precision Balances Operation

# 5.2.4 Method "Piece counting"

The method **Piece counting** allows you to determine the number of pieces put on the weighing pan. It is advantageous if all pieces are of approximately equal weight, since the unit quantity is determined on the basis of the average weight of a single piece.



For details about method settings:

#### See also

Settings: method "Piece counting" ▶ Page 85

### 5.2.4.1 Creating a method "Piece counting"

Navigation: ₹ Methods > ₹ Methods list

- 1 Tap + New in the action bar.
  - ⇒ The method wizard opens, starting at 1. Method type.
- 2 Tap **Method type** and select the method type **Piece counting**.
- 3 Tap → Next.
  - ⇒ The method wizard opens the section **2. Identification**.
- 4 Define the **Method name** and **Result description** and tap → **Next**.
  - ⇒ The method wizard opens the section **3. Configuration**.
- 5 Select a **Tolerance profile** and tap → **Next**.
  - ⇒ The method wizard opens the section **4. Weighing item**.
- 6 Define a reference for pieces **Reference PCS**, a **Reference average weight**, **Target weight** and tap → **Next**.
  - ⇒ The method wizard opens the last section **5. Save**.
- 7 Tap **Finish** to save the new method.
- ⇒ The method has been created and appears in the list.

#### 5.2.4.2 Performing a "Piece counting"



It is possible to exclude a weighing results from the protocol by opening the **Protocol** and tapping on **Exclude** result

The window **Complete task** always appears after completing the task, even if the results are saved automatically.

This section describes how the method **Piece counting** is being used in a task example. In this example we are weighing pieces in a sample vessel.

- 1 Open the **Methods** section.
- 2 Select a method from the **Methods list** or define a new method.

#### 3 Tap ▶ Start method.

- ⇒ The main weighing screen with the selected method opens. The balance displays the defined target value, the tolerance and the current average weight of one piece.
- 4 Press  $\rightarrow$  **0**  $\leftarrow$  to zero the balance.

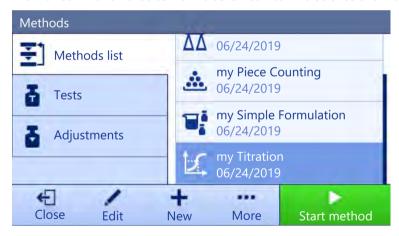
or

If a container is used, place the container (1) on the weighing pan (2) and press  $\rightarrow$  **T**  $\leftarrow$  to tare the balance.

- ⇒ The tare-measurement starts with **Taring...**.
- If not yet done, enter the average weight for a known number of pieces in the method settings. This serves as reference for the piece counting. Tap  $\stackrel{1}{\rightleftharpoons}$  to capture the weight of the items on the weighing pan and use it as reference weight.
- 6 Place the pieces in the sample vessel.
- 7 Close the draft shield (if applicable) and wait until the weight stabilizes.
- 8 Tap + Add to protocol.
  - ⇒ The weighing result is saved to the **Protocol**.
- 9 When the weighing process is finished, tap **Complete** in the action bar.
  - ⇒ The window Complete task opens. The task-specific information can be printed on a label printer. The Protocol can be printed manually or automatically (depending on the method settings).
- ⇒ The task **Piece counting** was successfully completed.

### 5.2.5 Method "Titration"

The method **Titration** enables the interaction between the balance and the titrator via MT-SICS.



For details about method settings:

#### See also

Settings: method "Titration" ▶ Page 93

#### 5.2.5.1 Creating a method "Titration"

Navigation: ₹ Methods > ₹ Methods list

- 1 Tap + New in the action bar.
  - ⇒ The method wizard opens, starting at 1. Method type.
- 2 Tap **Method type** and select the method type **Titration**.
- 3 Tap → Next.
  - ⇒ The method wizard opens the section **2. Identification**.
- 4 Define the **Method name** and **Result description** and tap  $\rightarrow$  **Next**.
  - ⇒ The method wizard opens the section **3. Configuration**.

Precision Balances Operation

- 5 Select a **RFID option**, a **Tolerance profile** and tap → **Next**.
  - ⇒ The method wizard opens the last section **4. Save**.
- 6 Tap **Finish** to save the new method.
- ⇒ The method has been created and appears in the list.

### 5.2.5.2 Performing a "Titration"

This example describes how to prepare a sample for titration and to transfer the information to the METTLER TOLEDO titrator via a USB connection. For more information about how to perform the titration, consult the manual of the titrator.

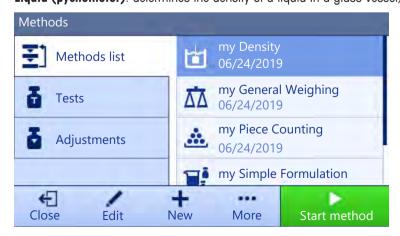
- A METTLER TOLEDO titrator is connected to the balance via USB.
- A titration method exists in the Methods list.
- 1 Open the **Methods** section.
- 2 Select the desired titration method from the Methods list.
- 3 Tap ▶ Start method.
  - ⇒ The main weighing screen appears with the selected method.
- 4 Press  $\rightarrow 0 \leftarrow$  to zero the balance.
- 5 Place the sample vessel on the weighing pan.
- 6 Wait until the weight stabilizes.
- 7 Press  $\rightarrow$ **T** $\leftarrow$  to tare the balance.
- 8 Place the sample in the sample vessel.
- 9 Wait until the weight stabilizes.
- 10 Tap **V OK** to accept the measurement.
  - ⇒ The weighing result is saved to the **Protocol** and automatically sent to the titrator.
- 11 Continue your workflow on the titrator.

# 5.2.6 Method "Density determination"

The method **Density determination** is used for determining the density of solids and liquids. Density determination is carried out based on **Archimedes' principle** according to which a body immersed in a fluid undergoes an apparent loss in weight that is equal to the weight of the fluid it displaces. Furthermore the density method also supports the pycnometer method, which does not rely on **Archimedes' principle**. The method **Density determination** includes three method types:

Solid: determines the density of a solid with the help of a density kit

**Liquid (sinker)**: determines the density of a liquid with the help of a density kit and a sinker **Liquid (pycnometer)**: determines the density of a liquid in a glass vessel, e.g. pycnometer



For details about method settings:

#### See also

Settings: method "Density determination" ▶ Page 101

### 5.2.6.1 Creating a method "Density determination"

### Navigation: ₹ Methods > ₹ Methods list

- 1 Tap + New in the action bar.
  - ⇒ The method wizard opens, starting at 1. Method type.
- 2 Tap Method type and select the method type Density.
- 3 Tap → Next.
  - ⇒ The method wizard opens the next creating section **2. Identification**.
- 4 Define the **Method name** and **Result description** and tap → **Next**.
  - ⇒ The method wizard opens the section **3. Configuration**.
- 5 Select the **Determination type** and define the corresponding settings, e.g., **Density unit** and **Weighing settings**.
- 6 Tap → Next.
  - ⇒ The method wizard opens the section **4. Weighing item**
- 7 Define Initial values for weighing and tap → Next.
  - ⇒ The method wizard opens the last section **5. Save**.
- 8 Tap **Finish** to save the new method.
- ⇒ The method has been created and appears in the list.



The **Determination type** can only be selected as part of a new created method. If another **Determination type** (solid, liquid) is required, a new method must be created.

# 5.2.6.2 Performing a "Density determination"

This example describes how to determine the density of a solid using a density kit.

- A density kit is available for the balance.
- 1 Open the **Methods** section.
- 2 Select a method from the **Methods list** or define a new method.
- 3 Tap ▶ Start method.
  - ⇒ The main weighing screen appears with the selected method.
- 4 Tap ▶ Start.
- 5 Specify the **Temperature** and the **Aux. liquid**.
- 6 Tap **✓ OK**.
- 7 Follow the instructions from the wizard.
  - ⇒ The **Protocol** opens and shows a summary of the weighing results.
- 8 Tap **Complete** to open the printing options.
  - ⇒ The dialog Complete task appears.
- 9 Tap **Complete**.
- ⇒ The task **Density determination** was successfully completed.

# 5.2.7 Editing a method

To clone a method proceed as follows:

- 1 Open the **Methods** section.
- 2 Select the method that you want to edit.
  - ⇒ The line color of the selected method becomes blue.

Precision Balances Operation

#### 3 Tap / Edit.

For details about method settings:

#### See also

Weighing methods settings ▶ Page 67

### 5.2.8 Cloning a method

To simplify the process to create a method, an existing method can be cloned one or several times. The cloned method will have the same parameter values as the original one. If weighing item templates exist, those will be cloned as well.

- 1 Open the **Methods** section.
- 2 Tap the method that you want to clone.
  - ⇒ The line color of the selected method becomes blue.
- 3 Tap ••• More and tap 
  Clone.
  - A copy of the selected method appears in the list. The cloned method has the same settings as the original method.



A method can be cloned several times. The name of the cloned method is always based on its original name, to which is appended a number.

# 5.2.9 Deleting a method

Both factory defined methods and user defined methods can be deleted if they are not needed. For this purpose proceed as follows:

- 1 Open the **Methods** section.
- 2 Tap the method that you want to delete.
  - ⇒ The line color of the selected method becomes blue.
- 3 Tap · · · More
- 4 Tap **m Delete**.
  - ⇒ The message **Delete method and cancel tasks?** appears on the screen.
- 5 Tap **V OK** to delete the selected method.
- ⇒ The system returns to the method list. The method has been deleted and does not appear on the list anymore.



There is always a method activated in the background. This method can not be directly deleted. To delete the method, another method must be started instead. Now the method is not activated anymore and can be deleted.

# 5.2.10 Using method templates

Working with templates can simplify the workflow, especially when several weighings with different predefined target weights have to be carried out one after the other. Characteristic information such as a target weight and tolerances can be defined in a template and must not be defined for every single weighing task. This may save time, especially when the weighing process consists of multiple steps.

The methods General Weighing with templates and Simple formulation with templates use templates.

Before a template can be used in the weighing process, it must be defined. There are two ways to define templates:

- The templates can be defined directly in the method creating process.
- The templates can be defined during the execution of a task within a method of the same type, without templates.

### 5.2.10.1 Defining a template during the method-defining process

This example describes how to define a template for the method **General Weighing with templates**.

- 1 Open the **Methods** section.
- 2 Tap + New method.
- 3 Select Method type General Weighing with templates.
- 4 Step through the method wizard until step 4. Templates
  - ⇒ The dialog screen **4. Templates** appears, the sample 1 can be defined.
- 5 Tap **Unit** to select the template unit.
- 6 Tap Target weight to define the target weight.
  - ⇒ The options —Tolerance and +Tolerance appear.
- 7 Tap **-Tolerance** to define the lower tolerance.
- 8 Tap +Tolerance to define the upper tolerance.
- 9 Tap → Next.
- 10 Tap 🗎 Finish.
- ⇒ The method has been created and appears in the method list.



This example only describes how to create templates for the method **General Weighing with templates**. For the other methods there might be several other options that can be defined.

### 5.2.10.2 Defining a template in a current task

It is also possible to create templates while performing a method without predefined templates, providing that the method type allows it.. This example describes how to create templates for the method **General Weighing**, respectively for the method **General Weighing with templates**. Templates can also be used for **Simple formulation** methods.

- 1 Start a method **General Weighing**.
- 2 Perform three weighings and add the results to the protocol by tapping + Add to protocol.
  - ⇒ The results are saved to the **Protocol**.
- 3 Tap ••• More.
- 4 Tap B Save as method with templates.
- 5 Define a Method name.
- 6 Tap ✓ OK.
- A method **General Weighing with templates** including three templates is created and added to the **Methods list** with the name defined by the user.

# 5.2.10.3 Working with templates

After the template has been created within a method, it can be used in a task.

- 1 Open the **Methods** section.
- 2 Select a method from the **Methods list** or define a new method.
- 3 Tap ▶ Start method.
  - ⇒ The main weighing screen opens. The target weight and the tolerance limits that have been defined in the template appear.

#### 5.3 Tests

Routine tests can be performed to ensure accurate weighing results according to GWP® or other QM systems. Therefore the tests should be performed in fixed, regular intervals depending on your QM system and the results should be documented in a traceable way.

43

Precision Balances Operation

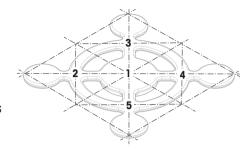
### Navigation: ₹1 Methods > 4 Tests

#### 5.3.1 Overview routine tests

METTLER TOLEDO can help you to define the routine tests to be performed based on your process requirements. Please contact your local METTLER TOLEDO representative for additional information.

#### 5.3.1.1 Eccentricity test

The purpose of the eccentricity test is to check if every eccentric load deviation (corner load deviation) is within the user SOP tolerances. The corner load is the deviation of the measurement value through off-center (eccentric) loading. The corner load increases with the weight of the load and its distance from the center of the weighing pan support. If the display remains consistent, even when the same load is placed on different parts of the weighing pan, the balance does not have corner load deviation.



The result corresponds to the highest of the four determined eccentric load deviations (2 to 5).

## 5.3.1.2 Repeatability test

The repeatability test calculates the standard deviation of a series of measurements with a single test weight in order to determine the repeatability of the balance.

Repeatability is a measure of the ability of a balance to supply the same result in repetitive weighings with one and the same load under the same measurement conditions. During the test, the same load is placed and measured in different parts of the weighing pan. Afterwards, the difference between the measured weight values is calculated. The spread of the measured results leads to the repeatability.

Repeatability is highly affected by the ambient conditions (drafts, temperature fluctuations and vibrations) and also by the skill of the person performing the weighing. Therefore, the series of measurements must be carried out by the same operator, in the same location, under constant ambient conditions and without interruption.

The following test types are available:

- Repeatab. 1 TP: To test repeatability of the balance without tare weight.
- Repeatab. Tare 1 TP: To test repeatability of the balance with tare weight. The first test weight (tare weight) is used to simulate a tare container.

# 5.3.1.3 Sensitivity tests

The sensitivity of the balance defines the deviation between the balance reading and the actual load. The sensitivity test allows you to measure the sensitivity using one or two test points.

The following test types are available:

- Sensitivity 1 TP: To test sensitivity of the balance with one test weight.
- Sensitivity 2 TP: To test sensitivity of the balance with two test weights.
- Sensitivity Tare 1 TP: To test sensitivity of the balance with two test weights. The first test weight (tare weight) is used to simulate a tare container.
- Sensitivity Tare 2 TP: To test sensitivity of the balance with three test weights. The first test weight (tare weight) is used to simulate a tare container.

### 5.3.2 Creating an own new test

Before a test can be performed, the test settings have to be defined. A test wizard is leading you step-by-step through the process.

- 1 Open the **Methods** section.
- 2 Tap Tests.

- 3 Tap + New.
  - ⇒ The wizard Create new test starts.
- 4 Select the test type.
- 5 Work through the process by using the button → **Next** to go to the next step or the button ← **Back** to go back to the previous step.

For information concerning the settings for the different test types **see** the following chapters.

For details about test settings:

#### See also

Tests settings ▶ Page 107

# 5.3.3 Defining a test weight

The user should enter data related to each test weight based on the corresponding certificate. This enables each external test weight to be clearly assigned to a specific certificate. Up to 12 external test weights can be configured. These test weights can be used to carry out external tests and adjustments.

### Navigation: ₹ Methods > ₹ Tests



An external test weight for an external adjustment has to weigh at least 10% of the balance capacity. External test weights under 10% of the balance capacity are not displayed on the balance.

- 1 Open the **Methods** section.
- 2 Tap ••• More and tap **& Tests**.
- 3 Tap Test weights.
  - ⇒ The dialog **Edit test weights** opens.
- 4 Tap + New test weight.
- 5 Define the test weight settings and confirm with **Finish**.
- ⇒ The test weight is defined and will be available later in the test procedure.

#### **Test weights settings**

Parameter	Description	Values
Test weight name	Defines the name of the test weight.	Text (122 characters)
Test weight ID	Defines the test weight ID.	Text (122 characters)
Weight class	Defines the weight class according to OIML or ASTM. Alternatively, a customized tolerance class can be created with <b>Own</b> .	E1   E2   F1   F2   M1   M2   M3   ASTM000   ASTM0   ASTM0   ASTM0   ASTM0   ASTM2   ASTM2   ASTM4   ASTM5   ASTM6   ASTM7   Own*
Actual weight	Defines the actual weight. The actual weight is a specific weight with a specific Conventional Mass Value (CMV) from the weight calibration certificate.	Numeric
Next calibration date	Defines the next date for calibration.	Numeric
Certificate	If the certificate of the test weight is available, set to <b>Active</b> and fill in the additional parameters related to the certificate information (see below).	Active I Inactive*
Certificate ID	Defines the certificate ID.	Text (122 characters)
	This option only appears when the option <b>Certificate ID</b> is set to <b>Active</b> .	

Precision Balances Operation

Certificate date	Defines the certificate date.	Date
	This option only appears when the option <b>Certificate ID</b> is set to <b>Active</b> .	
Weight set ID	Defines the weight set ID.	Text (122 characters)

# 5.3.4 Performing a test



### NOTICE

#### Measurement errors due to deficient handling of the test weights.

Deficient handling of the test weights can lead to incorrect result.

- Only handle test weights with gloves or forks.

You can perform an eccentricity test, a repeatability test or a sensitivity test. Which test you have to perform and when depends on the respective weighing processes. Mettler-Toledo GmbH can help you to define the routine tests to be performed based on your process requirements. Please contact your local METTLER TOLEDO representative for additional information.

Moments when tests could be performed:

- After cleaning
- After a software update
- Daily before putting into operation
- · Depending on own SOP

#### Requirements:

- At least one test weight is defined.
- At least one sensitivity, one repeatability or one eccentricity test is created.

All of the following pictured test weights or vessels are examples. Actual test weights or vessels may look different.

#### 5.3.4.1 Performing an eccentricity test

- 1 Open the **Methods** section.
- 2 Tap **Tests**.
  - ⇒ The test(s) previously defined appear on the list.
- 3 Select the eccentricity test you wish to perform and tap > Start.
  - ⇒ The test sequence starts.
- 4 Ensure that the weighing pan is empty and clear, the test weight is prepared, and weighing forks or gloves are ready.
- 5 When all requirements are fulfilled tap ✓ **OK**.
- 6 Make sure that the weighing pan is empty and tap **JOK**.
- 7 Choose an available test weight
  - or -

add a new test weight and tap **JOK**.

- 8 Open the draft shield, if applicable.
- 9 Place the test weight carefully in the middle of the weighing pan.
- 10 Close the draft shield, if applicable.
  - ⇒ The measurement starts with Capturing weight...
  - ⇒ The result of the first measurement is placed in the **Protocol** as **Position 1**.
- 11 Lift the test weight and move to position 2 (front left corner of the weighing pan).
  - ⇒ The measurement starts with Capturing weight...
  - ⇒ The result of the second measurement is placed in the **Protocol** as **Position 2**.

- 12 Lift the test weight and move to position 3 (back left corner of the weighing pan).
  - ⇒ The measurement starts with Capturing weight...
  - ⇒ The result of the third measurement is placed in the **Protocol** as **Position 3**.
- 13 Lift the test weight and move to position 4 (back right corner of the weighing pan).
  - ⇒ The measurement starts with Capturing weight...
  - ⇒ The result of the fourth measurement is placed in the **Protocol** as **Position 4**.
- 14 Lift the test weight and move to position 5 (front right corner of the weighing pan).
  - ⇒ The measurement starts with Capturing weight...
  - ⇒ The result of the fifth measurement is placed in the **Protocol** as **Position 5**.
  - ⇒ The eccentricity test is finished.
- 15 Remove the test weight carefully and tap **VOK** 
  - ⇒ The door closes automatically (depending on the door settings) and the balance starts an automatic zeroing.
- 16 When the test procedure is finished, tap **Finish**.
  - ⇒ The result dialog opens.
- 17 To print the results tap **Print**, to finish the test tap **Finish**.

#### Test result

If the test failed, see "Troubleshooting", search the error, remedy it and test again. If the test fails again, contact a METTLER TOLEDO representative.

#### See also

- Settings: eccentricity test ▶ Page 107
- Troubleshooting ▶ Page 121

# 5.3.4.2 Performing a repeatability test

In this section, both repeatability tests are described. Which test you use depends on the respective test target.

#### Repeatability - 1 test point

- 1 Open the **Methods** section.
- 2 Tap **Tests**.
  - ⇒ The test(s) previously defined appear on the list.
- 3 Select the repeatability test you wish to perform and tap > Start.
  - ⇒ The test sequence starts.
- 4 Ensure that the weighing pan is empty and clear, the test weight is prepared, and weighing forks or gloves are ready.
- 5 When all requirements are fulfilled tap **V OK**.
- 6 Make sure that the weighing pan is empty and tap **JOK**.
  - ⇒ The balance starts an automatic zeroing.
- 7 Choose an available test weight
  - or -
  - add a new test weight and tap **JOK**.
- 8 Open the draft shield, if applicable.
- 9 Place the test weight carefully in the middle of the weighing pan.
- 10 Close the draft shield, if applicable.
  - ⇒ The measurement starts with Capturing weight...
  - ⇒ The result of the measurement is saved to the **Protocol**.

Precision Balances Operation

- 11 Remove the test weight carefully and tap OK
  - ⇒ The balance starts an automatic zeroing.
  - ⇒ Depending on the specified **Number of repetitions** you have to repeat the last four steps x-times.
- 12 When the test procedure is finished, tap **Finish**.
  - ⇒ The result dialog opens.
- 13 To print the results tap **Print**, to finish the test tap **Finish**.

#### Repeatability - Tare - 1 test point

- 1 Open the **Methods** section.
- 2 Tap Tests.
  - ⇒ The test(s) previously defined appear on the list.
- 3 Select the repeatability test you wish to perform and tap > Start.
  - ⇒ The test sequence starts.
- 4 Ensure that the weighing pan is empty and clear, the test weight is prepared, and weighing forks or gloves are ready.
- 5 When all requirements are fulfilled tap **V OK**.
- 6 Make sure that the weighing pan is empty and tap **JOK**.
  - ⇒ The balance starts an automatic zeroing.
- 7 Choose an available test weight/test container
  - or -

add a new test weight/test container and tap **VOK** and put it on the weighing pan.

- ⇒ The measurement starts with **Taring...**.
- ⇒ The tare result is saved in the **Protocol**.
- 8 Carefully place the test weight onto the weighing pan or into the tare container.
  - ⇒ The measurement starts with Capturing weight...
  - ⇒ The result of the measurement is saved to the **Protocol**.
- 9 Remove the test weight, leave the container on the weighing pan.
  - ⇒ The measurement starts with **Taring...**.
- 10 Carefully place the test weight onto the weighing pan or into the tare container.
  - ⇒ The measurement starts with Capturing weight...
  - ⇒ The result of the measurement is saved to the **Protocol**.
  - Depending on the specified **Number of repetitions** you have to repeat the last twp steps a certain number of times.
- 11 When the test procedure is finished, tap **Finish**.
  - ⇒ The result dialog opens.
- 12 To print the results tap **Print**, to finish the test tap **Finish**.

#### **Test result**

If the test failed, see "Troubleshooting", search the error, remedy it and test again. If the test fails again, contact a METTLER TOLEDO representative.

#### See also

- Settings: repeatability test ▶ Page 110
- Troubleshooting ▶ Page 121

#### 5.3.4.3 Performing a sensitivity test

In this section, two of four possible sensitivity tests are described. Which test you use depends on the respective test target. The procedure for the tests with two test points is similar, but additional test weights and test containers are necessary.

#### Sensitivity - 1 test point

- 1 Open the **Methods** section.
- 2 Tap **Tests**.
  - ⇒ The test(s) previously defined appear on the list.
- 3 Select the sensitivity test you wish to perform and tap > Start.
  - ⇒ The test sequence starts.
- 4 Ensure that the weighing pan is empty and clear, the test weight is prepared, and weighing forks or gloves are ready.
- 5 When all requirements are fulfilled tap **V OK**.
- 6 Make sure that the weighing pan is empty and tap **JOK**.
  - ⇒ The balance starts an automatic zeroing.
- 7 Choose an available test weight
  - or -
  - add a new test weight and tap **JOK**.
- 8 Open the draft shield, if applicable.
- 9 Place the test weight carefully in the middle of the weighing pan.
- 10 Close the draft shield, if applicable.
  - ⇒ The measurement starts with Capturing weight...
  - ⇒ The result of the measurement is saved to the **Protocol**.
- 11 When the test procedure is finished, tap **Finish**.
  - ⇒ The result dialog opens.
- 12 To print the results tap **Print**, to finish the test tap **Finish**.

#### Sensitivity - Tare - 1 test point

- 1 Open the **Methods** section.
- 2 Tap & Tests.
  - ⇒ The test(s) previously defined appear on the list.
- 3 Select the sensitivity test you wish to perform and tap > Start.
  - ⇒ The test sequence starts.
- 4 Ensure that the weighing pan is empty and clear, the test weight is prepared, and weighing forks or gloves are ready.
- 5 When all requirements are fulfilled tap **V OK**.
- 6 Make sure that the weighing pan is empty and tap **JOK**.
  - ⇒ The balance starts an automatic zeroing.
- 7 Choose an available test weight
  - or -
  - add a new test weight and tap **~OK**.
  - ⇒ The measurement starts with **Capturing weight...**
  - ⇒ The tare result is saved in the **Protocol**.
- 8 Carefully place the test weight onto the weighing pan or into the tare container.
  - ⇒ The measurement starts with Capturing weight...
  - ⇒ The result of the measurement is saved to the **Protocol**.
- 9 When the test procedure is finished, tap **Finish**.
  - ⇒ The result dialog opens.
- 10 To print the results tap **Print**, to finish the test tap **Finish**.

Precision Balances Operation

#### **Test result**

If the test failed, see "Troubleshooting", search the error, remedy it and test again. If the test fails again, contact a METTLER TOLEDO representative.

#### See also

- Settings: sensitivity test ▶ Page 112
- Troubleshooting ▶ Page 121

# 5.3.5 Editing a test

### Navigation: ₹ Methods > 4 Tests

- 1 Select the test to be edited from the list and tap / Edit.
  - ⇒ The test settings open.
- 2 Edit your test parameters, see section [Tests settings ▶ Page 107].

#### See also

Tests settings ▶ Page 107

# 5.3.6 Printing test results

You can print a test manually, whether the parameter **Automatic print** in the test settings is activated or deactivated. For this purpose proceed as follows:

- 1 Open the **Methods** section.
- 2 Tap Tests.
  - ⇒ The test list opens.
- 3 Select the test to print and tap ••• More and tap 💻 Print all
- ⇒ The test is printed.

### 5.3.7 Deleting a test

Running tests are labeled with the symbol and cannot be deleted. To delete a test, it must be finished or another test must be activated. To delete a test, proceed as follows:

- 1 Open the **Methods** section.
- 2 Tap & Tests.
  - ⇒ The test list opens.
- 3 Select the test to delete.
- 4 Tap · · · More and tap in Delete.
  - ⇒ The section Delete routine test opens. The message Do you really want to delete the selected routine test? appears.
- 5 Tap **Yes** to delete the test. Tap **X No** to cancel the deleting process.
- After deleting the test, the system returns to the test list. The test has been deleted and does not appear on the list anymore.

### 5.3.8 Consulting the test history

### Navigation: ♥ Balance menu > ☐ History > ♣ Tests

- Select a test.
- ⇒ The test history opens. Specific data are displayed for each test, such as the date and time, type of test, temperature, level state, test weight ID, and weight deviation.

#### See also

History ▶ Page 57

# 5.4 Adjustments

This section describes how internal and external adjustments can be defined and performed. Which type of adjustment is performed depends on the defined adjustment **Strategy**.

Navigation: ₹ Methods > ♣ Adjustments

#### See also

Adjustments settings ▶ Page 115

### 5.4.1 Internal adjustment

### 5.4.1.1 Editing an internal adjustment

- 1 Open the **Methods** section.
- 2 Tap Adjustments.
- 3 Tap /Edit.
- 4 Set the Strategy to Internal adjustment.
- 5 Define the adjustment parameters.
- 6 Tap **✓ Save**.
- ⇒ Your internal adjustment has been edited.

For details about adjustment settings:

#### See also

Adjustments settings ▶ Page 115

### 5.4.1.2 Performing an internal adjustment

- The adjustment Strategy is set to Internal adjustment.
- 1 Open the **Methods** section, tap 3, select the adjustment, and tap > Start
  - or -

from the main weighing screen, tap ••• More and tap Start adjustment.

- ⇒ Internal adjustment is being executed.
- ⇒ When the adjustment has been completed, an overview of the adjustment results appears.
- 2 Tap **Print** if you want to print the results.
- 3 Tap **Finish adjustment**.
- ⇒ The balance is ready.

### 5.4.2 External adjustment

#### 5.4.2.1 Editing an external adjustment

- 1 Open the **Methods** section.
- 2 Tap Adjustments.
- 3 Tap /Edit.
- 4 Set the Strategy to External adjustment.
- 5 Tap **Edit test weights**.
  - ⇒ The dialog **Edit test weights** opens.
- 6 Select a test weight from the list and tap • OK
  - or -
  - tap + New test weight to define a new test weight.
- 7 Define the test weight settings and confirm with **VOK**.

Precision Balances Operation

- 8 Tap **</ Save**.
- ⇒ Your external adjustment has been edited.

For details about adjustment settings:

#### See also

- Adjustments settings ▶ Page 115
- Defining a test weight ▶ Page 45

### 5.4.2.2 Performing a external adjustment

After the external weights have been defined, the function **External adjustment** can be performed.

- 1 Open the **Methods** section.
- 2 Tap **Adjustments**.
- 3 Select the external adjustment you wish to perform and tap > Start.
  - ⇒ The adjustment process starts.
- 4 Ensure that the weighing pan is empty and clear, the test weight is prepared, and weighing forks or gloves are ready.
- 5 When all requirements are fulfilled tap **V** OK.
- 6 Make sure that the weighing pan is empty and tap **JOK**.
- 7 Choose an available test weight
  - or -

add a new test weight and tap **JOK**.

- 8 Open the draft shield, if applicable.
- 9 Place the test weight carefully in the middle of the weighing pan.
- 10 Close the draft shield, if applicable.
  - ⇒ The adjustment starts.
- 11 Remove the test weight from the weighing pan and tap **VOK**.
  - ⇒ The adjustment is finishing and the adjustment results appear.
- 12 To print the results tap **Print**, to finish the test tap **Finish**.

### 5.4.3 Consulting the adjustment history

### Navigation: ♠ Balance menu > ☐ History > ☐ Adjustments

- Select an adjustment.
- The adjustment history opens. Specific data are displayed for each adjustment such as the date and time, type of adjustment, temperature, level state, and correction.

#### See also

History ▶ Page 57

#### 5.5 External devices

Navigation: ♥ Balance menu > ♥ Settings > ₱ Devices / Printers

# 5.5.1 Adding a device

#### Adding a new device

- 1 To add a new device, tap ••• More, tap + Add device
  - ⇒ The Add device dialog opens.
- 2 Connect the device to one of the USB-A ports of the balance.
- 3 Follow the instructions from the wizard.



A label printer and a strip printer can be connected simultaneously to the balance.

#### Example: adding a barcode reader

- 1 To add a new device, tap ••• More, tap + Add device
  - ⇒ The **Add device** dialog opens.
- 2 Connect the device to one of the USB-A ports of the balance.
- 3 If you are installing a barcode reader you can scan the barcode displayed on the balance terminal. Tap **■■■**Tools and tap → Next.
  - ⇒ The barcode of the device is shown.
- 4 Scan the barcode from the device.
  - ⇒ The barcode is identified from the balance and the new device is connected.
- 5 To cancel the dialog, tap X Cancel.

### 5.5.2 Deleting a device

- 1 Select the device from the list of devices and printers.
- 2 Tap · · · More and tap in Delete device.
  - ⇒ The message of the type "Are you sure you would like to delete the selected device?" is shown.
- 3 To delete, tap **V OK**. To cancel the delete dialog, tap **X Cancel**.
- ⇒ The device is deleted.

### 5.5.3 Editing device settings

- 1 Select the device from the list of devices and printers.
  - ⇒ Device type, name, status and settings are shown.
- 2 To change the name of the device, tap **Name**, enter the name and tap **\( \lambda \)**.
- 3 Some devices, e.g., printers, have additional editable settings. To edit those settings, tap ▶ Printer settings.
  - ⇒ The dialog printer settings opens.

#### 5.5.4 Printing a test page

If you have installed a printer, a test page can be printed.

- 1 Select the printer in the list of devices.
- 2 Tap · · · More and tap 🖆 Print test page.

## **5.6** Tolerance profiles

#### Creating a Tolerance profile

- 1 Tap + New to create a new profile.
- 2 Define the profile settings.
- 3 When all the settings have been defined, tap ✓ **OK**.
  - ⇒ The system returns to the profile list and the new profile appears on the list.

By tapping an existing profile, its settings can be changed, the profile can be deleted or it can be set as default value. Several profiles can be created. A default profile must be selected.

53

Precision Balances Operation

# 5.7 Data management

### Navigation: ♥ Balance menu > 🖹 Maintenance > 🗎 Import / Export

The import or export of data can be used to save or transfer data from one balance to another.

The following data can be imported or exported:

- Balance settings
- Methods
- · Tests and weights

### 5.7.1 Exporting data and settings

- 1 Select **Export data and settings**.
  - ⇒ The dialog Export data and settings opens.
- 2 Select Export and tap → Next
  - ⇒ The window Export data and settings appears.
- 3 Select the data type(s) you want to export.
- 4 Plug in the USB storage device to one of the USB-A ports of the balance.
- 5 Tap ✓ Export.
  - ⇒ A list of available USB storage devices opens.
- 6 Select the target USB storage device to store the data.
- 7 Tap → Next.
  - The system exports the data to the USB storage device. If the export was successful, the screen shows with the file name and its target folder.
- 8 Tap X Close to finish the process.

# 5.7.2 Importing data and settings

With the function **Import data and settings**, settings from other balances can be imported to this balance. It is also possible to re-import settings that have been exported.

- 1 Select | Import data and settings.
- 2 Plug in the USB storage device with the data to import.
- 3 Tap → Next.
  - ⇒ A list of available USB storage devices opens.
- 4 Select the USB storage device with the data to import.
- 5 Tap  $\rightarrow$  Next.
- 6 Select the data file you want to import.
- 7 Tap → Next.
- 8 Select the data type(s) you want to import.
  - ⇒ When importing methods, you can select if all methods or a selection of methods will be imported. Methods of the same name will be overwritten.
- 9 Tap / Import.
- The message **Import of data and settings has been executed.** appears. The import was successful. Tap **X Close** to return to the main weighing screen.

# 5.8 Password protection and balance reset

The balance settings or the whole balance can be blocked to prevent unauthorized modifications or usage. An unblocking password first needs to be created.

# **NOTICE**



#### Unusable balance due to forgotten password

A blocked balance cannot be unblocked without the unblocking password.

Note the password and keep it in a safe place.

## 5.8.1 Creating an unblocking password

#### Navigation: ♥ Balance menu > ♥ Settings > ≗ Balance > ♥ General

- 1 To create an unblocking password, tap ••• More in the action bar and select *p* Unblocking password
  - ⇒ The dialog **Set unblocking password** opens.
- 2 Set a new password, confirm it, and tap **V** OK.
- 3 In the dialog & General, tap < Save and < OK.
- ⇒ The unblocking password is created.
- ⇒ The additional option a **Blocking** is available in the action bar of the **Balance menu**. It can be used to block the balance or block/unblock the balance settings.

# 5.8.2 Blocking and unblocking the settings

Blocking the settings will prevent unauthorized modifications of the settings of the balance. Further usage of the balance is possible, but the balance settings cannot be edited without the unblocking password (except **Language**).

Navigation: ♣ Balance menu > ₼ Blocking

#### 5.8.2.1 Blocking the settings

- 1 To block the balance settings, tap Block settings.
  - ⇒ The diglog Block balance opens.
- 2 Tap **V OK** to block the settings.
- ⇒ The balance settings are blocked. The balance can be used normally, but the balance and method settings cannot be edited.

#### 5.8.2.2 Unblocking the settings

- The balance settings are blocked.
- The unblocking password is available.
- 1 To unblock the balance settings, tap **unblock settings**.
- 2 Type the unblocking password and tap **V OK**.
- ⇒ The balance settings are unblocked.

# 5.8.3 Blocking and unblocking the balance

Blocking the balance will prevent any further usage of the balance. The balance can only get unblocked with the unblocking password.

#### 5.8.3.1 Blocking the balance

#### Navigation: ♣ Balance menu > ෧ Blocking

- 1 To block the balance tap **a Block balance**.
  - ⇒ The dialog **Block balance** opens.
- 2 Tap → Next.
- 3 Enter your unblocking password and tap **J Block balance**.
- ⇒ The balance is blocked and the blocking screen appears.

Precision Balances Operation

### 5.8.3.2 Unblocking the balance

- The balance is blocked and the blocking screen is open.
- The unblocking password is available.
- 1 To unblock the balance, type the unblocking password in the password field.
- 2 Tap Unblock balance.
- 3 Tap Unblock balance to confirm.
  By tapping Cancel instead, the main weighing screen appears, but the balance is still blocked and only a limited number of settings can be edited.
- ⇒ The balance is unblocked and the main weighing screen appears.

# 5.8.4 Resetting the balance

Navigation: 🌣 Balance menu > 🖺 Maintenance > 🗅 Reset



# **NOTICE**

#### Reset causes data loss

Resetting the balance will delete user application data and set the user configuration back to factory state.

- 1 To delete the data for test history and adjustment history, activate the option Also delete test and adjustment history.
- 2 Tap → Next.
  - ⇒ The window **Reset balance** opens and warns that some data will be lost by resetting the balance.
- 3 Tap **5 Reset balance**.
  - ⇒ The balance software restarts in factory state.

# **6** Software Description

# **6.1** Balance menu settings

The section **Balance menu** is divided into the following subsections.

- **© Leveling aid** (see [Leveling aid ▶ Page 57])
- **☐ History** (see [History ▶ Page 57])
- **Settings** (see [Settings ▶ Page 58] )
- **\( \subseteq Maintenance \)** (see [Maintenance **\rightarrow Page 67] \)**

The **Balance menu** contains general settings and information. To open the section **Balance menu**, tap the symbol **\$\frac{1}{4}\$** on the right-hand side of the display.

## 6.1.1 Leveling aid

Exact horizontal positioning and stable installation is essential for repeatable and accurate weighing results. With the **Leveling aid** the balance can be leveled.

### Navigation: ♥ Balance menu > ♥ Leveling aid



After leveling the balance an internal adjustment must be performed.

#### See also

Leveling the balance ▶ Page 29

# 6.1.2 History

The balance permanently records the tests and adjustments that are performed in the section History

#### Navigation: ♥ Balance menu > ☐ History

The section **History** is divided into the following subsections:

- **Adjustments**, see below.
- **Tests**, see below.
- **Service**, see below.

### 6.1.2.1 Adjustments

### Navigation: ♠ Balance menu > ☐ History > ☐ Adjustments

A maximum of 500 entries can be stored in the adjustments history.

Symbol	Description	Procedure
lacksquare	Filter	Tap to <b>Filter</b> the adjustment history by a defined date range or by a user ID.
	Print	Tap to print the adjustment history list.
€	Close	Tap to return to the section <b>History</b>

#### 6.1.2.2 Tests

#### Navigation: ♠ Balance menu > ☐ History > ☐ Tests

A maximum of 500 entries can be stored in the test history.

Precision Balances Software Description

Symbol	Description	Procedure
lacksquare	Filter	Tap to <b>Filter</b> the test history by a defined date range or by a user ID.
	Print	Tap to print the test history list.
<b>←</b>	Close	Tap to return to the section <b>History</b> .

#### 6.1.2.3 Service

# Navigation: ♥ Balance menu > ☐ History > **☑** Service

A maximum of 500 entries can be stored in the service history.

Symbol	Description	Procedure
lacksquare	Filter	Tap to <b>Filter</b> the service history by a defined date range or by technician.
	Print	Tap to print the service history list.
€	Close	Tap to return to the section <b>History</b> .

#### 6.1.3 Balance info

### Navigation: ♥ Balance menu > ■ Balance info

The section **Balance info** shows numerous information about the specific balance such as:

- Identification
- Hardware
- Software
- Maintenance

Symbol	Description	Procedure
$\odot$	License agreement	Tap to open the licence agreement.
<b>←</b>	Close	Tap to return to the section <b>History</b> .

# 6.1.4 Settings

This section describes the procedure for adapting the balance to suit specific requirements. The system settings apply to the entire weighing system and therefore to all user profiles and applications.

# Navigation: ♥ Balance menu > ♥ Settings

The section **Settings** is divided into the following subsections:

- A Interfaces
- Tall Devices / Printers

Software Description Precision Balances

### • 🔩 LabX / Services

### 6.1.4.1 Balance

# Navigation: ♦ Balance menu > ♦ Settings > ≜ Balance

The section **Balance** is divided into the following subsections:

- Q Weighing / Quality
- 🗞 Date / Time / Language / Format
- \* Screen / StatusLight / Sound
- 🗫 General

# Weighing / Quality

# Navigation: ♣ Balance menu > ♣ Settings > ♣ Balance > ♣ Weighing / Quality

Parameter	Description	Values
Leveling warning	Defines the behaviour of the option <b>Leveling warning</b> .	Inactive I Optional
	When the option <b>Forced leveling</b> is selected and the balance is out of level, a weighing value cannot be added to the protocol (green button disabled).	leveling* I Forced leveling
Tolerance profiles	A tolerance profile stores all the necessary balance settings needed for a certain weighing method. It is possible to create different tolerance profiles for different weighing methods.	
	This option has several subsections and is described later in this chapter.	
Automatic weight value output	Defines if and in which manner (MT-SICS and/or HID) the weighing values should be exported.	
	This option has several subsections and is described later in this chapter.	
GWP Approved mode	Good Weighing Practice (GWP®) is a program started by METTLER TOLEDO to help customers operate their weighing equipment in a safe and efficient way. It covers every relevant step in the life cycle of the instrument and provides clear guidance on how to specify, calibrate and operate weighing instruments. The GWP Approved mode observes if the following conditions are given:  Use of an appropriate tolerance profile.  The internal adjustment was successful.  Required tests were successful.  Setting up of enforced leveling.  No MinWeigh violation.  If all conditions are given, the balance adds the GWP Approved sign behind every weighing result.	Active I Inactive*
	The <b>GWP Approved mode</b> can only be enabled by a METTLER TOLEDO service technician.	
Balance recalib. reminder	Defines whether the user is reminded about the upcoming exipry date of the calibration.	Active*   Inactive
Days in advance	Defines the number of days before the reminder informs about the upcoming due date.	0365

Precision Balances Software Description 59

Action when	Defines the action when the calibration has expired.	None* I Block
calib. expired	<b>Block</b> : The balance will be blocked. In this case, the balance cannot be used anymore until a user with the appropriate right unblocks the balance.	
Days before blocking	Defines the number of days before the reminder informs about the upcoming expiry date.	Days (30 days* I 0400 days)
Weight recalib. reminder	Defines whether the user is reminded about the upcoming expiry date of the test weight calibration.	Active I Inactive*
Service reminder	Defines whether the user is reminded about the upcoming due date of the service.	Active I Inactive*

<sup>\*</sup> Factory setting

# **Tolerance profiles**

Settings relating to weighing performance and data from balance calibration can be stored in a tolerance profile.

For more information about creating tolerance profiles, see [Tolerance profiles ▶ Page 53]

Parameter	Description	Values
Name	Defines the name of the profile.	Text (022 characters)
Indicator	Defines the color of the indicator icon for the tolerance profile. The icon will appear above the weighing value unit. When a color is selected, a description of max. 3 characters can be added.	None*   Neutral   White   Yellow   Red   Blue   Green   Black
Indicator text	Defines the text of the indicator icon.	Text (03 characters)
Calibration certificate	Selects a calibration certificate from a drop-down list of certificates available on the balance. New certificates can only be created by a service technician based on a performed balance calibration.	Calibration certificate I None*
Environment	Defines the environmental conditions of the balance.	Very stable I Stable I
	<b>Very stable</b> : For an environment that is free from any drafts and vibrations.	Standard*   Unstable   Very unstable
	<b>Stable</b> : For an environment that is practically free from drafts and vibrations.	
	<b>Standard</b> : For an average working environment subject to moderate variations in the ambient conditions.	
	<b>Unstable</b> : For an environment where the conditions are from time to time changing.	
	<b>Very unstable</b> : For an environment where the conditions are continuously changing.	
Weighing mode	Defines the weighing mode of the balance.	Universal*   Sensor
	Universal: For all standard weighing applications.	mode
	<b>Sensor mode</b> : Depending on the setting of the ambient conditions, this setting delivers a filtered weighing signal of varying strength. The filter has a linear characteristic in relation to time (not adaptive) and is suitable for continuous measured value processing.	
Value release	Defines the speed at which the balance regards the measured value as stable and releases it.	Very fast   Fast*   Fast and reliable   Reliable   Very reliable
	<b>Very fast</b> : recommended if you require fast results and repeatability is not very important.	
	<b>Very reliable</b> : provides very good repeatability of the measured results but prolongs the stabilization time.	
	Some intermediate settings can also be choose from.	

Software Description Precision Balances

Display readability	Determines the readability [d] of the balance display.  1d: Shows the maximum resolution  2d: Shows the final digit in increments of 2  5d: Shows the final digit in increments of 5  10d: 10x smaller resolution  100d: 100x smaller resolution  1000d: 1000x smaller resolution	1d*   2d   5d   10d   100d   1000d
Zero drift compensation	The function <b>Zero drift compensation</b> performs ongoing corrections of deviations from zero which may occur, for example, as a result of small amounts of dirt on the weighing pan.	Active* I Inactive
Allowed units	Defines the units that are allowed in this tolerance profile.	The available values are model-specific.

<sup>\*</sup> Factory setting

# Automatic weight value output

The balance can be connected to a computer with a USB cable. Weighing results can then be directly transferred to a target application, e.g., Microsoft Excel.

Parameter	Description	Values
Output mode	Defines which weighing values are transferred via the communication interface, e.g., USB, Ethernet.	Protocol* I Continuous
	<b>Protocol</b> : The weighing values are transferred only when they are added to the <b>Protocol</b> .	
	<b>Continuous</b> : The weighing values are transferred continuously via the interface defined under <b>LabX / Services</b> > <b>MT-SICS</b> .	
	Additional fields are available, depending on the chosen option.	
Target	Defines the way the weighing values are transferred.	HID*   HID / MT-SICS
	HID (Human Interaction Device): Transfers simple character streams (e.g. weight values) to a desktop computer without installing additional drivers (comparable to a keyboard). The format of a transferred weighing value can be configured.	MT-SICS   MT-SICS configurable
	MT-SICS: The data is transferred in MT-SICS format (METTLER TOLEDO Standard Interface Command Set). MT-SICS operates bidirectional, i.e. usually balance sends the confirmations to the host and receives commands. A separate reference manual is available for MT-SICS.	
	HID / MT-SICS: The data is transferred in HID and MT-SICS format in parallel.	
	MT-SICS configurable: The data is transferred in a user-defined MT-SICS format.	
	This parameter is only available if <b>Output mode</b> is set to <b>Protocol</b> .	
Weight field length	Defines the number of digits that will be transferred into the application on the computer, e.g., into an Excel field.	Numeric (1* I 020)
	This parameter is only available if <b>Output mode</b> is set to <b>Protocol</b> .	

Precision Balances Software Description 61

Sign	Defines if the weighing result is displayed with an algebraic sign.  For all values: Each weighing result is preceded by a plus or minus sign.	For all values I For negative values*
	For negative values: Only negative values are preceded by a minus sign. Positive values are transferred without algebraic sign.	
	This parameter is only available if <b>Output mode</b> is set to <b>Protocol</b> .	
Sign position	Defines if the algebraic sign is positioned at the first place of the weight field or directly in front of the weight digits.	Left of weight field I Left of weight digits*
	This parameter is only available if <b>Output mode</b> is set to <b>Protocol</b> .	
Decimal delimiter	Defines the character used to separate the whole and fractional part of a numeric value.	,   .*
	This parameter is only available if <b>Output mode</b> is set to <b>Protocol</b> .	
Net indicator	In the standard output format, net weights are not specially marked. To place an N in front of net weights, this function can be activated. The net symbol is left-justified in the field.	Active   Inactive*
	This parameter is only available if <b>Output mode</b> is set to <b>Protocol</b> .	
Net indicator field	Defines the field length of the Net indicator.	Numeric (2*   1 2)
length	This parameter is only available if <b>Output mode</b> is set to <b>Protocol</b> and <b>Net indicator</b> is set to <b>Active</b> .	
Unit	Defines if a weighing unit is being shown in the weighing field.	Active*   Inactive
	This parameter is only available if <b>Output mode</b> is set to <b>Protocol</b> .	
Unit field length	Defines the field length of the weighing unit.	Numeric (1*   16)
	This parameter is only available if <b>Output mode</b> is set to <b>Protocol</b> and <b>Unit</b> is set to <b>Active</b> .	
Field delimiter	Defines a character or sequence of characters to separate data fields.	Outside*   TAB   ,   ;
	This parameter is only available if <b>Output mode</b> is set to <b>Protocol</b> .	
End of line character	Defines a character or sequence of characters signifying the end of a line.	CRLF*   CR   LF   TAB   Outside   Enter
	This parameter is only available if <b>Output mode</b> is set to <b>Protocol</b> .	
Updates/sec.	Defines the rate at which data is transferred.	2   5   6*   10
	This parameter is only available if <b>Output mode</b> is set to <b>Continuous</b> .	
Format	Defines the format of the transferred data.	MT-SICS*   PM   AT/MT
	This parameter is only available if <b>Output mode</b> is set to <b>Continuous</b> .	
* Eastony cotting		

<sup>\*</sup> Factory setting

62

Software Description Precision Balances

# Date / Time / Language / Format

# Navigation: ♦ Balance menu > ♦ Settings > ≜ Balance > ♠ Date / Time / Language / Format

Parameter	Description	Values
Date	Defines the current date. Use the pick buttons Increment/ Decrement to define the date.	Date
Time	Defines the current time.	Time
	Use the pick buttons Increment/Decrement to define the time.	
Language	Defines the language of the interface navigation.	English   Deutsch   Français   日本語   中文   Español   Italiano   Pyccкий   Português   Polski   Magyar   Čeština
Time zone	Selects a time zone. When the time zone is set, the balance changes automatically between summer and winter time	see list on the screen
Date format	Selects the date format.	D.MMM.YYYY* I MMM D YYYY I DD.MM.YYYY I MM/DD/YYYY I YYYY- MM-DD I YYYY/MM/DD I YYYY年M月D日
Time format	Selects the time format.	24:MM*   12:MM   24.MM   12.MM
Keyboard layout	Defines the language of the keyboard layout.	English I German I French I Spanish I Japanese I Simplified Chinese I Russian I Czech I Polish I Hungarian

<sup>\*</sup> Factory setting

# Screen / StatusLight / Sound

# Navigation: ♣ Balance menu > ♣ Settings > ♣ Balance > \* Screen / StatusLight / Sound

Parameter	Description	Values
Screen brightness	Defines the brightness of the display.	20 %   40 %   60 %   80 %*   100 %
Sound volume	Defines the volume of the terminal sound.	Inactive   20 %   40 %   60 %*   80 %   100 %
Sound on key press	Defines if there is a sound when a key is pressed.	Active*   Inactive
Sound on info	Defines if there is a sound when an information appears on the screen.	Active*   Inactive
Sound on warning	Defines is there is a sound when a warning appears on the screen.	Active*   Inactive
Sound on error	Defines is there is a sound in case of an error.	Active*   Inactive

Precision Balances Software Description

StatusLight	Activates/deactivates the <b>StatusLight</b> . <b>Active (without green light)</b> : All current status of the balance are monitored, the red/yellow lights will turn on if needed, but the green light will stay turned off.	Active* I Active (without green light) I Inactive
	StatusLight is red: Error. The balance must not be used until the error is corrected.	
	StatusLight is yellow: Warning. For example, the test manager has pushed a test to the balance or you are operating the balance between the date of the calibration reminder and the scheduled date of the next calibration. The balance can still be used.	
	StatusLight is green or off: Ok. No problems detected and the balance is ready to weigh.	
StatusLight	Defines the brightness of the activated status light.	20 %   40 %   60 %*
brightness	This option appears only when the option <b>StatusLight</b> is set to <b>Active</b> or <b>Active</b> (without green light).	80 %   100 %

<sup>\*</sup> Factory setting

#### General

# Navigation: ♥ Balance menu > ♥ Settings > ≗ > Balance General

Parameter	Description	Values
Balance ID	Defines the ID of the balance.	Text (022 characters)
Standby	Activates/deactivates the automatic standby mode.	Active*   Inactive
	<b>Active</b> : The standby mode becomes active after a configurable time period the balance was not used.	
	<b>Inactive</b> : The standby mode has to be activated manually by tapping the ON/OFF button.	
Wait time	Defines after how many minutes the balance switches automatically in standby mode when not used.	Numeric (10 minutes* I 060 minutes)
	This option is only activated when the option <b>Standby</b> is set to <b>Active</b> .	
Software update on system start-up	With this option activated, software update can be performed from a USB storage device on startup.	Active* I Inactive

# 6.1.4.2 Interfaces

# Navigation: ♥ Balance menu > ♥ Settings > ₭ Interfaces

The section **Interfaces** has the following subsection:

- 뫟 Ethernet
- ▶)) Bluetooth

#### **Ethernet**

With the option **DHCP** activated, the parameters for the ethernet connection will be automatically set. With the option **Manual** activated, the options for the ethernet connection must be set manually by the user.

# Navigation: ♥ Balance menu > ♥ Settings > ♬ Interfaces > 맣 Ethernet

Parameter	Description	Values
Host name	Defines the balance host name.	Numeric (22* I 0 22)

Software Description Precision Balances

MAC address	Information on the MAC address (Media Access Control) that is used to uniquely identify the balance in the network.	-
Network configuration	<b>DHCP</b> : The parameters for the ethernet connection will be automatically set. <b>Manual</b> : The options for the ethernet connection must be set manually by the user.	DHCP*   Manual
IP address	If the IP is not to be automatically obtained, you can enter it here.	000.000.000.000 255.255.255.255
Subnet mask	Defines the subnet mask that is used by the TCP/IP protocol to determine whether a host is on the local subnet or on a remote network.	000.000.000.000 255.255.255.255
DNS server (primary)	Defines the domain name server address of the primary server.	000.000.000.000 255.255.255.255
DNS server (secondary)	Defines the domain name server address of the secondary DNS server.	000.000.000.000 255.255.255.255
Default gateway	Defines the address of the default gateway that links the host's subnet to other networks.	000.000.000.000 255.255.255.255

<sup>\*</sup> Factory setting

#### **Bluetooth**

Navigation: ☼ Balance menu > ☼ Settings > 爲 Interfaces > № Bluetooth

#### **Bluetooth identification**

Parameter	Description	Values
Activation	With the option <b>Bluetooth</b> you have the possibility to commu-	Inactive*   Active
	nicate with a printer via Bluetooth.	

### 6.1.4.3 Devices / Printers

In this section optional external devices such as printers, barcode scanners, etc. can be added and configured.

# Navigation: ♥ Balance menu > ♥ Settings > ₱ Devices / Printers

This section is divided into the following subsections:

- 📮 Label printer
- 💻 Strip printer
- 🔁 Barcode reader
- 📳 Foot switch

### **Label printer**

### Navigation: ♥ Balance menu > ♥ Settings > ₹ Devices / Printers > ■ Label printer

Parameter	Description	Values
Printer category	Defines the type of the printer.	Strip printer I Label
	Strip printer allows the printing of weighing results on strip paper.	printer*
Device	Allows to activate or deactivate the device.	Activated*   Deactivated

<sup>\*</sup> Factory setting

#### Strip printer

Navigation: 🌣 Balance menu > 🌣 Settings > 🔁 Devices / Printers > 💻 Strip printer

Precision Balances Software Description

Parameter	Description	Values
Printer category	Defines the type of the printer. Strip printer allows the printing of weighing results on strip paper.	Strip printer I Label printer*
Device	Allows to activate or deactivate the device.	Activated*   Deactivated
Line end	Defines the line end character for printing. The values set here have to match the printer settings.	<cr> <lf>*   <cr>   <lf></lf></cr></lf></cr>
Character set	Defines the communication specific character code. The values set here have to match the printer settings.	ANSI/WIN I IBM/DOS I UTF8*

<sup>\*</sup> Factory setting

#### **ErgoSens**

#### Navigation: ♦ Balance menu > ♦ Settings > ♣ Devices / Printers > ♠ ErgoSens

Parameter	Description	Values
Function	Defines the function of hands-free operating that can be used to execute certain weighing functions.	None*   Doors   Zero   Tare   Add result

#### Foot switch

#### Navigation: ♣ Balance menu > ♣ Settings > ♣ Devices / Printers > ♣ Foot switch

Parameter	Description	Values
Function	Defines the function be used to execute certain weighing functions.	None*   Doors   Zero   Tare   Add result

#### 6.1.4.4 LabX / Services

To enable communication between LabX and instruments, the appropriate settings in the instruments must correspond with the settings in LabX.

LabX synchronizes the date and time on the instruments with the LabX Server each time a connection is made and each time a task is started. When an instrument is connected, the user interface language on the connected instrument is changed to the language currently installed on the LabX installation.

## Navigation: ♥ Balance menu > ♥ Settings > ♣ LabX / Services

Parameter	Description	Values
LabX service	<b>Network</b> : A network connection to LabX will be established on startup.	Network   Inactive*   USB
	Inactive: No connection to LabX will be established.	
	<b>USB</b> : A USB connection to LabX will be established on startup.	
MT-SICS service	Network: A network connection to MT-SICS will be established on startup.  Inactive: No connection to MT-SICS will be established.  USB: A USB connection to MT-SICS will be established on startup.	Network   Inactive*   USB

<sup>\*</sup> Factory setting

### 6.1.4.5 Printing the settings

#### Navigation: ♥ Balance menu > ♥ Settings > · · · More

When all the balance settings are configured, you can print the complete list to archive the information.

- To print the balance settings, tap Print the settings
  - ⇒ The complete balance settings are printed.

Software Description Precision Balances

#### 6.1.5 Maintenance

### Navigation: ♣ Balance menu > 🖹 Maintenance

The section **Maintenance** is divided into the following subsections:

- 🗎 Import / Export
- S Reset
- Service

#### See also

- Data management ▶ Page 54
- Software update ▶ Page 119
- Resetting the balance ▶ Page 56

#### 6.1.5.1 Service menu

Navigation: ♦ Balance menu > 🖹 Maintenance > 🖋 Service

Symbol	Description	Procedure
Show		Tap to open information about:
	adjustment	- Temperature correction
_	state	- Production and user linearization
		- User, production and standard calibration
	Save support files	Tap to save support files (all relevant information to an error) on a USB storage device like an USB stick to send it to a METTLER TOLEDO representative.
	Import log configuration	A log configuration file can be provided by METTLER TOLEDO to allow a more comprehensive collection of balance parameters to be stored in the support file. This is only used for troubleshooting purposes.
		Tap to import the log configuration from a USB storage device so that the enhanced list of parameters can be exported and sent to a METTLER TOLEDO representative.

# 6.2 Weighing methods settings

# 6.2.1 Settings: method "General weighing"

In this section, the settings of the methods **General Weighing** and **General Weighing with templates** are described. Settings can be edited for a newly created method or an already existing method.

Navigation: ₹ Methods > ₹ Methods list > ☎ General Weighing > ▶ Edit



Precision Balances Software Description

The section **General Weighing** is divided into the following subsections:

- ₹] General
- • ID format
- Weighing item (Only available for the method General Weighing)
- Later Templates (Only available for the method General Weighing with templates)
- 🚼 Weighing
- **&** Automation
- Print / Export

#### See also

- Creating a method "General weighing" ▶ Page 35
- Editing a method ▶ Page 41

# 6.2.1.1 General

The **Method type** is defined in the wizard while creating the method and cannot be changed.

Parameter	Description	Values
Method name	Defines the name of the method. The system copies the method name that has been defined with the function <b>Method wizard</b> .	Text (122 characters)
Comment	The method can be described with a comment.	Text (0128 characters)
Lock method	Locks the method for other users and from further editing while running.	Active I Inactive*

<sup>\*</sup> Factory setting

### 6.2.1.2 ID format

#### Task IDs

Parameter	Description	Values
Number of task	Defines the number of task IDs.	0 1* 2
IDs	If the value of the option <b>Number of task IDs</b> is larger than 0, the options <b>Task ID</b> , <b>Description</b> and <b>Prefix/Default value</b> appear for every single task ID.	
Task ID 1	Defines the naming type of the task ID.	Manual with default* I
	<b>Manual with default</b> : The value of the task ID can be entered manually at method execution time.	Automatic timestamp
	<b>Automatic timestamp</b> : The system provides a value created from a prefix with the current date and time appended.	
Description	Allows to define a label for each task ID field.	Text (032 characters)
Default value	Defines a default value for the task ID. The value of the task ID can be changed manually while executing the method.	Text (032 characters)
	This option only appears when the option <b>Manual with default</b> is activated.	
Prefix	Defines a prefix for the task ID.	Text (032 characters)
	This option only appears when the option <b>Automatic timestamp</b> is activated.	

<sup>\*</sup> Factory setting

Software Description Precision Balances

### **Result IDs**

Parameter	Description	Values
Number of result IDs	Defines the number of result IDs.	0   1*   2
	If the value of the option <b>Number of result IDs</b> is larger than 0, the options <b>Result ID 1</b> , <b>Description</b> and <b>Prefix/Default value</b> appear for every single result ID.	
Result ID 1	Defines the naming type of the result ID.	Manual with default* I Automatic counter
	<b>Manual with default</b> : The value of the result ID can be entered manually at method execution time.	
	<b>Automatic counter</b> : The system provides a value created from a prefix with an unique number (counter) appended.	
Description	Allows to define a label for each result ID.	Text (032 characters)
Default value	Defines a default value for the result ID. The value of the result ID can be changed manually while executing the method.	Text (032 characters)
	This option only appears when the option <b>Manual with default</b> is activated.	
Prefix	Defines a prefix for the result ID.	Text (032 characters)
	This option only appears when the option <b>Automatic counter</b> is activated.	

<sup>\*</sup> Factory setting

# 6.2.1.3 Weighing item

A target weight with tolerance limits can be defined for the method. The method **General Weighing** includes a single item in **Weighing item**, whereas several items can be defined for the method **General Weighing with templates** in **Templates**.

#### Initial values for weighing

Parameter	Description	Values
Unit	Defines the unit of the primary weighing result.	The available units depend on the balance model.
Target weight	Defines the target weight. The target weight will be shown in the weighing-in aid of the balance (SmartTrac). When a target weight including tolerances is defined, the SmartTrac indicates if the current display weight is in tolerance or not.	Numeric
—Tolerance	Defines the lower tolerance limit.  This option only appears when the option <b>Target weight</b> is activated.	Numeric
+Tolerance	Defines the upper tolerance limit.  This option only appears when the option <b>Target weight</b> is activated.	Numeric

# See also

Creating a method "General weighing" ▶ Page 35

### 6.2.1.4 Templates

This option is only available for the method **General Weighing with templates**.

Parameter	Description	Values
Sample ID	Defines the name of the sample.	Text (032 characters)

69

Precision Balances Software Description

Unit	Defines the unit of the primary weighing result.	The available units depend on the balance model.
Target weight	Defines the target weight. The target weight will be shown in the weighing-in aid of the balance (SmartTrac). When a target weight including tolerances is defined, the SmartTrac indicates if the current display weight is in tolerance or not.	Numeric
-Tolerance	Defines the lower tolerance limit.	Numeric
	This option only appears when the option <b>Target weight</b> is activated.	
+Tolerance	Defines the upper tolerance limit.	Numeric
	This option only appears when the option <b>Target weight</b> is activated.	

### See also

- Creating a method "General weighing" ▶ Page 35
- Using method templates ▶ Page 42

# **6.2.1.5** Weighing

### **Custom unit**

When the parameter **Define custom unit** is activated, additional parameters can be defined.

Parameter	Description	Values
Define custom unit	With this option activated, a specific weighing unit can be defined. This allows calculations, e.g., surfaces or volumes, to be carried out directly during the determination of the weighing result.	Active I Inactive*
	The custom units are available in all menus and input fields in which weighing units can be selected.	
Name	Defines the name of the custom unit.	Text (06 characters)
Formula	Defines how subsequently defined value for <b>Factor</b> is calculated. There are 2 formulae available:	Multiplicative*   Divisive
	Multiplicative: Multiplies the net weight by the factor.	
	<b>Divisive</b> : The factor is divided by the net weight.	
	The formula can be used, for example, to simultaneously take into account a known error factor while weighing.	
Factor	Defines the factor with which the effective weighing result (net weight) is calculated via the previously selected <b>Formula</b> .	Numeric
Display	Defines the formatting for the weighing result.	Numeric
readability	Example: A setting of "0.05" defines two places after the decimal point with rounding to 5. A determined result of 123.4777 is consequently displayed as 123.50.	
	This function can only be used to reduce the resolution of the weighing result. No value must therefore be entered that exceeds the maximum balance resolution. Values that are too small are automatically rounded off.	

<sup>\*</sup> Factory setting

70

Software Description Precision Balances

# Weighing settings

Parameter	Description	Values
Tolerance profile	A tolerance profile stores all the necessary balance settings needed for a certain weighing method. It is possible to create different tolerance profiles for different weighing methods.	Available tolerance profiles are model-specific.
Weight capture mode	Defines the behavior when the button to add the result was tapped or the add result was triggered by the automatic weighing result creation.	Stable*   Immediate   Dynamic
	Stable: The system waits for a stable weight.	
	Immediate: The system doesn't wait for a stable weight. The system waits for the defined amount of seconds (Weight capture delay). After the weight capture delay, the weight value from the weight stream is captured.	
	<b>Dynamic</b> : The balance calculates the weight as the average of a number of weighing operations over a defined time ( <b>Weight capture duration</b> ).	
Weight capture delay	Defines the time in seconds the balance waits for capturing the weight after the button to add the result was tapped or the add result was triggered by the automatic weighing result creation.	Numeric (5 seconds* I 060 seconds)
	This option only appears when the <b>Weight capture mode</b> is set to <b>Immediate</b> or <b>Dynamic</b> .	

<sup>\*</sup> Factory setting

# **Statistics**

Parameter	Description	Values
Activate statistics	If <b>Activate statistics</b> is set to <b>Active</b> , the following statistics will be calculated:	Active I Inactive*
	Count: Number of items used for the statistics	
	Sum: Sum of all value (decimal places and unit according to the method settings)	
	Minimum: Smallest value (decimal places and unit according to the method settings)	
	Maximum: Largest value (decimal places and unit according to the method setting)	
	Range: Difference between the largest and smallest values (decimal places and unit according to the method settings)	
	Average: The values are summed up and divided by the number of values, rounded to 1 digit more than the configured decimal places in the method settings (unit according to the method settings)	
	Standard deviation: Standard deviation rounded to 1 digit more than the configured decimal places in the method settings (unit according to the method settings)	
	Relative standard deviation: Relative standard deviation (rounded to 2 decimal places, in %)	
	The statistical values are calculated and displayed as soon as a result is added or updated.	

<sup>\*</sup> Factory setting

Precision Balances Software Description

### **Electrostatic**

Parameter	Description	Values
Ionizer	Defines whether the ionizer is activated/deactivated.	Active I Inactive*

<sup>\*</sup> Factory setting

### See also

Creating a method "General weighing" ▶ Page 35

# 6.2.1.6 Automation

Parameter	Description	Values
Barcode data target	If a barcode reader is connected to the balance, this option defines how the data is to be processed.	Keyboard Input* I Target weight value I Task ID 1 I Result ID 1 I
	<b>Keyboard Input</b> : The data is written in the currently open input window. If no input window is open, the data is ignored.	
	<b>Target weight value</b> : The barcode data is interpreted as a value for the target weight.	
	<b>Task ID 1</b> : The received barcode data is treated as identification text for this task ID.	tion
	<b>Result ID 1</b> : The received barcode data is treated as identification text for this result ID.	
	The available items in the drop-down menu depend on the <b>Number of task IDs</b> and <b>Number of result IDs</b> specified for the method.	
	Make sure that the characters of the scanned barcode are compatible with the format of the field where they should be inserted.	

<sup>\*</sup> Factory setting

72

# Weighing automation

Parameter	Description	Values
Automatic zero	If <b>Automatic zero</b> is set to <b>Active</b> , the balance automatically zeros the balance when the weight falls below a predefined threshold.	Active I Inactive*
Automatic zero	Defines the threshold of the option Automatic zero.	Numeric
threshold	This option only appears when the option <b>Automatic zero</b> is activated.	
Tare Mode	Defines the tare mode.	None*   Automatic tare
	None: No automatic tare.	Pretare
	<b>Automatic tare</b> : The balance stores automatically the first stable weight as the tare weight.	
	<b>Pretare</b> : Allows you to enter manually a numerical entry of a fixed tare weight.	

Automatic tare	Defines the threshold of the option Tare Mode.	Numeric
threshold	This value defines the minimum weight that must be applied to the weighing pan so that it is automatically stored as the tare weight. If the weight is below the limits, it is not automatically transferred to the tare memory.	
	Instead of entering the weight, the lightest tare container can be placed on the weighing pan and the button \(\delta\) subsequently pressed. The applied weight is directly taken over as a limit.	
	This option only appears when the option <b>Tare Mode</b> is set to <b>Automatic tare</b> .	
Pretare value	Defines a weight value for the pretare function.	Numeric
	Instead of entering the value, the respective tare container can be placed on the weighing pan and the button \(\ddots\) subsequently pressed. The weight is directly taken over as pretare value.	
	This option only appears when the option <b>Tare Mode</b> is set to <b>Pretare</b> .	
Automatic result	Automatically generates a weighing result after a threshold is reached.	None I With sample tare* I Without sample
	None: No automatic result will be generated.	tare
	<b>With sample tare</b> : After a weight value that reached the threshold is being removed from the weighing pan, the balance is being tared.	
	<b>Without sample tare</b> : After a weight value that reached the threshold is being removed from the weighing pan, the balance is not being tared.	
Automatic result threshold	Defines the threshold of the option <b>Automatic result</b> .  The result is automatically added to the protocol only if the weight of the sample is larger than this threshold.  This option only appears when the option <b>Automatic result</b> is activated.	Numeric
Weight trigger	Defines the behaviour of the option <b>Automatic result threshold</b> .	Exceeding*   Falling
	<b>Exceeding</b> : The weighing result is generated when the weight exceeds the defined threshold.	below
	<b>Falling below</b> : The weighing result is generated when the weight falls below the defined threshold.	
	This parameter is only available if <b>Automatic result</b> is set to <b>Without sample tare</b> .	
Automatic tare after result	If set to <b>Active</b> , the balance is automatically tared when a result is added to the <b>Protocol</b> .	Active   Inactive*
Automatic task completion	If <b>Automatic task completion</b> is set to <b>Active</b> , the balance automatically completes a running task after the last template has been added to the <b>Protocol</b> .	Active   Inactive*
	This option is only available if the method is using templates.	

<sup>\*</sup> Factory setting

### See also

Creating a method "General weighing" ▶ Page 35

# **6.2.1.7** Print / Export

This section is divided into the following subsections:

• Protocol printout and data export

Precision Balances Software Description

- Label printout for task
- Label printout for weighing item

### Protocol printout and data export

### Automatic data output

Parameter	Description	Values
Strip printer	Activates/Deactivates automatic printing of the protocol on a strip printer when the <b>Complete</b> button is tapped. The data to be transmitted to the printer can be defined in the section <b>Template settings</b> .	Active I Inactive*
Weight value	Activates/Deactivates the option to automatically send the weighing value over USB or Ethernet when tapping <b>Add to protocol</b> .	Active I Inactive*

<sup>\*</sup> Factory setting

#### Protocol template for printout

This menu item can be used to define information to appear in the **Protocol**. The extensive menu is divided into six submenus in which options for the printout can be defined. Information can be enabled or disabled by activating or deactivating the corresponding checkbox.

Each individual parameter can set to **Inactive** or **Active** via the corresponding check box. To enable or disable all parameters at once, proceed as follows:

- 1 To deselect all check boxes at once, tap To Deselect all
  - ⇒ All parameters are set to **Inactive**.
- 2 To select all check boxes at once, tap To Select all
  - ⇒ All parameters are set to **Active**.

#### **Template settings**

Parameter	Description	Values
Header and Footer	Defines the header (with title, date and time) and/or footer (with signature and end line) to be printed/exported.	Header*   Title*   Date/ time   Signature*   Separating lines*   Group titles
Balance information	Defines which information about the balance is being printed/ exported.	Balance type I Balance ID* I Balance serial number I Software version
Quality infor- mation	Defines which quality information is being printed/exported.	Tolerance profile I Adjustment date/time I Routine test name I Routine test last execution date I Routine test result I GWP Approved state I Level state I MinWeigh state

Task information	Defines which information about the task is being printed/export.	Method name I Method comment I Task IDs I Custom unit settings I Automatic result settings I Count I Sum I Average I Minimum I Maximum I Range I Standard deviation I Relative standard deviation
Weighing item information	Defines which information about the weighing items is being printed/exported.	Show excluded weighing items   Result State   Result   IDs*   GWP Approved state   Electrostatic charge   Level state   MinWeigh state   Tolerance state   Target and tolerances state
Result detail information	Defines which information related to the result of the measurement is being printed/exported.	Weight*   Tare weight   Gross weight   Info weight   Date/time*   Stability

<sup>\*</sup> Factory setting

# Label printout for task

Parameter	Description	Values
Automatic label printout for task	When set to <b>Active</b> , the task label is automatically printed when tapping <b>Complete</b> .	Active I Inactive*
Used template	Chooses the label template.	Available labels are shown below.

<sup>\*</sup> Factory setting

### **Field settings**

The content of each label field can be defined individually.

Parameter	Description	Values
Label field 1	Defines which information appears in each label field. The	Available entries depend
	number of label fields depends on the selected template.	on the method settings.

### **Barcode settings**

The content of each barcode field can be defined individually. This section is only available when the selected **Used template** contains at least one 2D code.

Parameter	Description	Values
Delimiter	Defines the delimiter between the barcode entries.	TAB I Form feed I
	The option <b>2D barcode delimiter</b> appears only when the selected <b>Used template</b> contains several 2D codes.	Carriage return   Space   User defined
Barcode field 1	Defines which information appears in each barcode. The number of the barcode fields depends on the selected template.	Available entries depend on the method settings.

### Label printout for weighing items

Parameter	Description	Values
Automatic label	When set to <b>Active</b> , the task label is automatically printed when	Active   Inactive*
printout for task	tapping Complete.	

75

Used template	Chooses the label template.	Available labels are
		shown below.

<sup>\*</sup> Factory setting

### **Field settings**

The content of each label field can be defined individually.

Parameter	Description	Values
Label field 1	Defines which information appears in each label field. The	Available entries depend
	number of label fields depends on the selected template.	on the method settings.

### **Barcode settings**

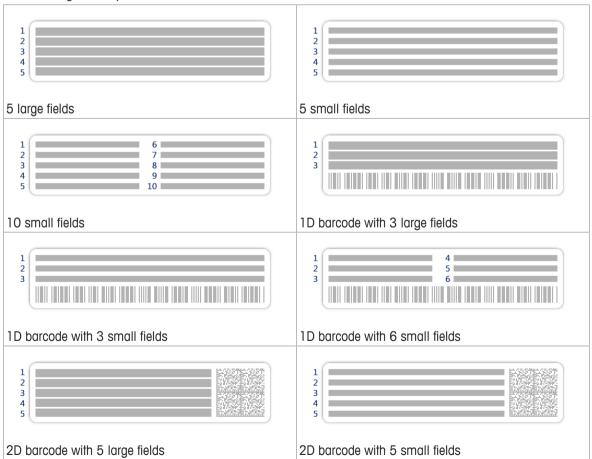
The content of each barcode field can be defined individually. This section is only available when the selected **Used template** contains at least one 2D code.

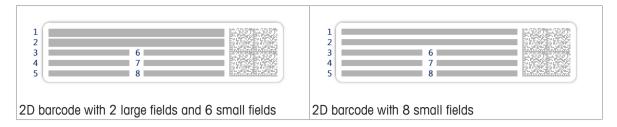
Parameter	Description	Values
Delimiter	Defines the delimiter between the barcode entries.	TAB I Form feed I
	The option <b>2D barcode delimiter</b> appears only when the selected <b>Used template</b> contains several 2D codes.	User defined
Barcode field 1	Defines which information appears in each barcode. The number of the barcode fields depends on the selected template.	Available entries depend on the method settings.

#### Available labels

76

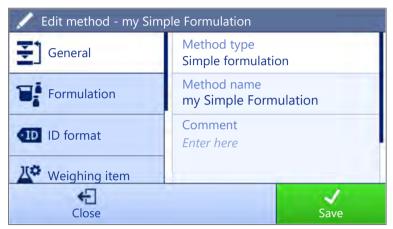
The following label layouts can be selected:





### 6.2.2 Settings: method "Simple formulation"

Navigation: ₹] Methods > ₹] Methods list > ¥ Simple formulation > ✓ Edit



The section **Simple formulation** is divided into the following subsections:

- ₹] General
- **■**Formulation
- • ID format
- Weighing item (Only available for the method Simple formulation)
- La Templates (Only available for the method Simple formulation with templates)
- 🕏 Weighing
- 6 Automation
- Export / Export

#### See also

Creating a method "Simple formulation" ▶ Page 36

#### 6.2.2.1 General

The **Method type** is defined in the wizard while creating the method and cannot be changed.

Parameter	Description	Values
Method name	Defines the name of the method. The system copies the method name that has been defined with the function <b>Method wizard</b> .	Text (122 characters)
Comment	The method can be described with a comment.	Text (0128 characters)
Lock method	Locks the method for other users and from further editing while running.	Active I Inactive*

<sup>\*</sup> Factory setting

Precision Balances Software Description

# 6.2.2.2 Formulation

Parameter	Description	Values
Calculate target	In this section the flask volume and the concentration of the target can be defined.	None* I Flask volume I Target concentration
	<b>Flask volume</b> : Calculates the target weight according to the reference flask volume and the actual flask volume.	
	<b>Target concentration</b> : Calculates the target weight according to the desired target concentration.	
	This option only appears for the method <b>Simple formulation with templates</b> .	
Calculate concentration per component	Calculates the concentration of the substance based on the molecular weight, purity volume and dosed amount of substance, e.g. mmol/l.	Active I Inactive*
	If this option is activated, the sub-options <b>Reference weight</b> (100%) and <b>Concentration unit</b> appear in the list.	
Calculate amount of component	Calculates the effective amount of a component based on the current weighing value.	Active I Inactive*
Concentration unit	Defines the concentration unit.	mol/l*   mmol/l   mg/ml   mg/l   µg/ml   g/ml   g/l   %
Reference flask	Defines the volume of the reference flask.	Numeric (1 ml* l
volume	This parameter is only available if the <b>Concentration unit</b> is not set to %.	1999999 ml)
Reference weight	Defines the reference weight.	Depending on the
(100%)	Instead of entering the reference weight manually, press subsequently the button $\stackrel{L}{=}$ . The applied weight is directly taken over as a reference weight.	capacity of the balance.
	This parameter is only available if the <b>Concentration unit</b> is set to %.	

<sup>\*</sup> Factory setting

# Production and expiry date

Parameter	Description	Values
Production date	Defines the production date.	None I Current date* I Manual input
	<b>Current date</b> : The production date is set automatically to the date when starting the weighing task.	
	<b>Manual input</b> : The production date can be entered manually when starting the weighing task.	
Expiry date	Defines the expiry date of the substance.	None*   Period   Manual
	<b>Period</b> : The expiry date is set automatically when starting the weighing task (expiry date = date when starting the weighing task + number of days defined in the field <b>Period</b> .	input
	<b>Manual input</b> : The expiry date can be entered manually when starting the weighing task.	
Period	Defines the period of the expiry date.	Numeric (1 day* l
	This option only appears when the option <b>Expiry date</b> is set to <b>Period</b> .	19999 days)

<sup>\*</sup> Factory setting

78

### See also

Creating a method "Simple formulation" ▶ Page 36

# 6.2.2.3 ID format

### Task IDs

Parameter	Description	Values
Number of task	Defines the number of task IDs.	0 1* 2
IDs	If the value of the option <b>Number of task IDs</b> is larger than 0, the options <b>Task ID</b> , <b>Description</b> and <b>Prefix/Default value</b> appear for every single task ID.	
Task ID 1	Defines the naming type of the task ID.	Manual with default* I
	<b>Manual with default</b> : The value of the task ID can be entered manually at method execution time.	Automatic timestamp
	<b>Automatic timestamp</b> : The system provides a value created from a prefix with the current date and time appended.	
Description	Allows to define a label for each task ID field.	Text (032 characters)
Default value	Defines a default value for the task ID. The value of the task ID can be changed manually while executing the method.	Text (032 characters)
	This option only appears when the option <b>Manual with default</b> is activated.	
Prefix	Defines a prefix for the task ID.	Text (032 characters)
	This option only appears when the option <b>Automatic timestamp</b> is activated.	

<sup>\*</sup> Factory setting

### **Result IDs**

Parameter	Description	Values
Number of result	Defines the number of result IDs.	0 1* 2
IDs	If the value of the option <b>Number of result IDs</b> is larger than 0, the options <b>Result ID 1</b> , <b>Description</b> and <b>Prefix/Default value</b> appear for every single result ID.	
Result ID 1	Defines the naming type of the result ID.	Manual with default* I
	<b>Manual with default</b> : The value of the result ID can be entered manually at method execution time.	Automatic counter
	<b>Automatic counter</b> : The system provides a value created from a prefix with an unique number (counter) appended.	
Description	Allows to define a label for each result ID.	Text (032 characters)
Default value	Defines a default value for the result ID. The value of the result ID can be changed manually while executing the method.	Text (032 characters)
	This option only appears when the option <b>Manual with default</b> is activated.	
Prefix	Defines a prefix for the result ID.	Text (032 characters)
	This option only appears when the option <b>Automatic counter</b> is activated.	

<sup>\*</sup> Factory setting

Precision Balances Software Description

### 6.2.2.4 Weighing item

A target weight with tolerance limits can be defined for the method. The method **Simple formulation** includes a single item in Weighing item, whereas several items can be defined for the method Simple formulation with templates in Templates.

### Initial values for weighing

Parameter	Description	Values
Unit	Defines the unit of the primary weighing result.	The available units depend on the balance model.
Target weight	Defines the target weight. The target weight will be shown in the weighing-in aid of the balance (SmartTrac). When a target weight including tolerances is defined, the SmartTrac indicates if the current display weight is in tolerance or not.	Numeric
—Tolerance	Defines the lower tolerance limit.  This option only appears when the option <b>Target weight</b> is activated.	Numeric
+Tolerance	Defines the upper tolerance limit.  This option only appears when the option <b>Target weight</b> is activated.	Numeric

#### See also

Creating a method "Simple formulation" ▶ Page 36

### 6.2.2.5 Templates



Detailed information about how to create templates and the use of templates can be found in the section Using templates.

Parameter	Description	Values
Component ID	Assigns a name to the component ID	Text (032 characters)
Purity	To define the purity of the component.  This parameter is only accessible if <b>Calculate amount of component</b> is set to <b>Active</b> .	Numeric (0.001100%)
Unit	Defines the unit of the primary weighing result.	The available units depend on the balance model.
Target weight	Defines the target weight. The target weight will be shown in the weighing-in aid of the balance (SmartTrac). When a target weight including tolerances is defined, the SmartTrac indicates if the current display weight is in tolerance or not.	Numeric
Target concen- tration	To define the concentration of the component.	Numeric (0.001100%)
-Tolerance	Defines the lower tolerance limit.	Numeric
	This option only appears when the option <b>Target weight</b> is activated.	
+Tolerance	Defines the upper tolerance limit.	Numeric
	This option only appears when the option <b>Target weight</b> is activated.	

### See also

- Creating a method "Simple formulation" ▶ Page 36
- Using method templates ▶ Page 42

# **6.2.2.6** Weighing

# **Weighing settings**

Parameter	Description	Values
•	A tolerance profile stores all the necessary balance settings needed for a certain weighing method. It is possible to create different tolerance profiles for different weighing methods.	Available tolerance profiles are model-specific.

#### **Electrostatic**

Parameter	Description	Values
Ionizer	Defines whether the ionizer is activated/deactivated.	Active I Inactive*

<sup>\*</sup> Factory setting

### See also

Creating a method "Simple formulation" ▶ Page 36

### 6.2.2.7 Automation

Parameter	Description	Values
Barcode data target	If a barcode reader is connected to the balance, this option defines how the data is to be processed.	Keyboard Input*   Target weight value   Task ID 1   Result ID 1
	<b>Keyboard Input</b> : The data is written in the currently open input window. If no input window is open, the data is ignored.	
	<b>Target weight value</b> : The barcode data is interpreted as a value for the target weight.	
	<b>Task ID 1</b> : The received barcode data is treated as identification text for this task ID.	
	<b>Result ID 1</b> : The received barcode data is treated as identification text for this result ID.	
	The available items in the drop-down menu depend on the <b>Number of task IDs</b> and <b>Number of result IDs</b> specified for the method.	
	Make sure that the characters of the scanned barcode are compatible with the format of the field where they should be inserted.	

<sup>\*</sup> Factory setting

# **Weighing automation**

Parameter	Description	Values
Automatic zero	If <b>Automatic zero</b> is set to <b>Active</b> , the balance automatically zeros the balance when the weight falls below a predefined threshold.	Active I Inactive*
Automatic zero	Defines the threshold of the option <b>Automatic zero</b> .	Numeric
threshold	This option only appears when the option <b>Automatic zero</b> is activated.	

81

Tare Mode	Defines the tare mode.	None*   Automatic tare
	None: No automatic tare.	Pretare
	<b>Automatic tare</b> : The balance stores automatically the first stable weight as the tare weight.	
	<b>Pretare</b> : Allows you to enter manually a numerical entry of a fixed tare weight.	
Automatic tare	Defines the threshold of the option Tare Mode.	Numeric
threshold	This value defines the minimum weight that must be applied to the weighing pan so that it is automatically stored as the tare weight. If the weight is below the limits, it is not automatically transferred to the tare memory.	
	Instead of entering the weight, the lightest tare container can be placed on the weighing pan and the button $\stackrel{1}{=}$ subsequently pressed. The applied weight is directly taken over as a limit.	
	This option only appears when the option <b>Tare Mode</b> is set to <b>Automatic tare</b> .	
Pretare value	Defines a weight value for the pretare function.	Numeric
	Instead of entering the value, the respective tare container can be placed on the weighing pan and the button $\stackrel{1}{=}$ subsequently pressed. The weight is directly taken over as pretare value.	
	This option only appears when the option <b>Tare Mode</b> is set to <b>Pretare</b> .	
Automatic tare after result	If set to <b>Active</b> , the balance is automatically tared when a result is added to the <b>Protocol</b> .	Active I Inactive*
Automatic task completion	If <b>Automatic task completion</b> is set to <b>Active</b> , the balance automatically completes a running task after the last template has been added to the <b>Protocol</b> .	Active   Inactive*
	This option is only available if the method is using templates.	

<sup>\*</sup> Factory setting

#### See also

Creating a method "Simple formulation" ▶ Page 36

### 6.2.2.8 Print / Export

This section is divided into the following subsections:

- Protocol printout and data export
- Label printout for task
- Label printout for weighing item

### 6.2.2.8.1 Protocol printout and data export

# Automatic data output

Parameter	Description	Values
Strip printer	Activates/Deactivates automatic printing of the protocol on a strip printer when the <b>Complete</b> button is tapped. The data to be transmitted to the printer can be defined in the section <b>Template settings</b> .	
Weight value	Activates/Deactivates the option to automatically send the weighing value over USB or Ethernet when tapping <b>Add to protocol</b> .	Active I Inactive*

<sup>\*</sup> Factory setting

82

### Protocol template for printout

This menu item can be used to define information to appear in the **Protocol**. The extensive menu is divided into six submenus in which options for the printout can be defined. Information can be enabled or disabled by activating or deactivating the corresponding checkbox.

Each individual parameter can set to **Inactive** or **Active** via the corresponding check box. To enable or disable all parameters at once, proceed as follows:

- 1 To deselect all check boxes at once, tap To Deselect all
  - ⇒ All parameters are set to **Inactive**.
- 2 To select all check boxes at once, tap To Select all
  - ⇒ All parameters are set to **Active**.

#### **Template settings**

Parameter	Description	Values
Header and Footer	Defines the header (with title, date and time) and/or footer (with signature and end line) to be printed/exported.	Header*   Title*   Date/ time   Signature*   Separating lines*   Group titles
Balance infor- mation	Defines which information about the balance is being printed/ exported.	Balance type I Balance ID* I Balance serial number I Software version
Quality infor- mation	Defines which quality information is being printed/exported.	Tolerance profile I Adjustment date/time I Routine test name I Routine test last execution date I Routine test result I GWP Approved state I Level state I MinWeigh state
Task information	Defines which information about the task is being printed/export.	Method name   Method comment   Task ID   Flask volume*   Reference weight*   Expiry date*   Production date*
Weighing item information	Defines which information about the weighing items is being printed/exported.	Show excluded weighing items   Result State*   Result   IDs*   Molar mass   Purity   Amount of substance*   Concentration*   GWP Approved state   Level state*   MinWeigh state   Tolerance state*   Target and tolerances state*
Result detail information	Defines which information related to the result of the measurement is being printed/exported.	Weight*   Tare weight   Gross weight   Info weight   Date/time*   Stability

<sup>\*</sup> Factory setting

Precision Balances Software Description

### Label printout for task

Parameter	Description	Values
Automatic label printout for task	When set to <b>Active</b> , the task label is automatically printed when tapping <b>Complete</b> .	Active I Inactive*
Used template	Chooses the label template.	Available labels are shown below.

<sup>\*</sup> Factory setting

### **Field settings**

The content of each label field can be defined individually.

Parameter	Description	Values
Label field 1	Defines which information appears in each label field. The	Available entries depend
	number of label fields depends on the selected template.	on the method settings.

#### **Barcode settings**

The content of each barcode field can be defined individually. This section is only available when the selected **Used template** contains at least one 2D code.

Parameter	Description	Values
Delimiter	Defines the delimiter between the barcode entries.	TAB I Form feed I
	The option <b>2D barcode delimiter</b> appears only when the selected <b>Used template</b> contains several 2D codes.	Carriage return   Space   User defined
Barcode field 1	Defines which information appears in each barcode. The number of the barcode fields depends on the selected template.	Available entries depend on the method settings.

### Label printout for weighing items

Parameter	Description	Values
Automatic label printout for task	When set to <b>Active</b> , the task label is automatically printed when tapping <b>Complete</b> .	Active I Inactive*
Used template	Chooses the label template.	Available labels are shown below.

<sup>\*</sup> Factory setting

#### **Field settings**

The content of each label field can be defined individually.

Parameter	Description	Values
	l ·	Available entries depend
	number of label fields depends on the selected template.	on the method settings.

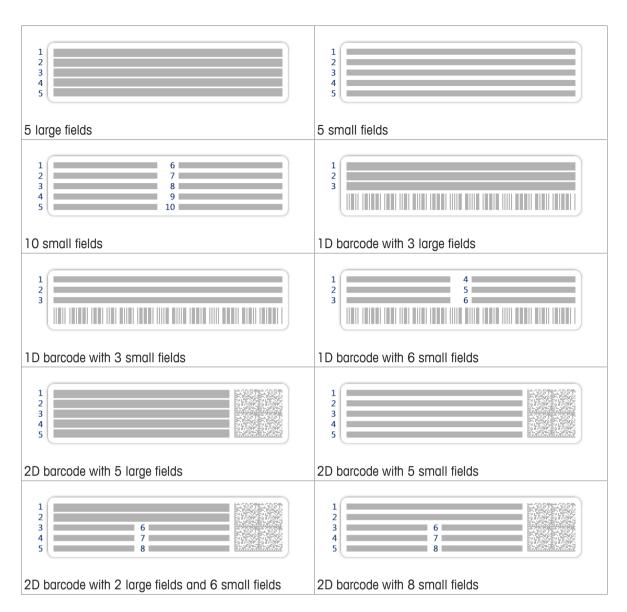
### **Barcode settings**

The content of each barcode field can be defined individually. This section is only available when the selected **Used template** contains at least one 2D code.

Parameter	Description	Values
Delimiter	Defines the delimiter between the barcode entries.	TAB I Form feed I
	The option <b>2D barcode delimiter</b> appears only when the selected <b>Used template</b> contains several 2D codes.	Carriage return   Space   User defined
Barcode field 1	Defines which information appears in each barcode. The number of the barcode fields depends on the selected template.	Available entries depend on the method settings.

#### **Availlable Labels**

The following label layouts can be selected:



### 6.2.3 Settings: method "Piece counting"

Navigation: ₹ Methods > ₹ Methods list > ♣ Piece counting > ✔ Edit



The section **Piece counting** is divided into the following subsections:

- ₹] General
- 40 ID format

Precision Balances Software Description

- Weighing item
- 🕏 Weighing
- **&** Automation
- Print / Export

### See also

Creating a method "Piece counting" ▶ Page 38

### 6.2.3.1 General

The **Method type** is defined in the wizard while creating the method and cannot be changed.

Parameter	Description	Values
Method name	Defines the name of the method. The system copies the method name that has been defined with the function <b>Method wizard</b> .	Text (122 characters)
Comment	The method can be described with a comment.	Text (0128 characters)
Lock method	Locks the method for other users and from further editing while running.	Active I Inactive*

<sup>\*</sup> Factory setting

# 6.2.3.2 ID format

#### Task IDs

Parameter	Description	Values
Number of task	Defines the number of task IDs.	0 1* 2
IDs	If the value of the option <b>Number of task IDs</b> is larger than 0, the options <b>Task ID</b> , <b>Description</b> and <b>Prefix/Default value</b> appear for every single task ID.	
Task ID 1	Defines the naming type of the task ID.	Manual with default* I
	<b>Manual with default</b> : The value of the task ID can be entered manually at method execution time.	Automatic timestamp
	<b>Automatic timestamp</b> : The system provides a value created from a prefix with the current date and time appended.	
Description	Allows to define a label for each task ID field.	Text (032 characters)
Default value	Defines a default value for the task ID. The value of the task ID can be changed manually while executing the method.	Text (032 characters)
	This option only appears when the option <b>Manual with default</b> is activated.	
Prefix	Defines a prefix for the task ID.	Text (032 characters)
	This option only appears when the option <b>Automatic timestamp</b> is activated.	

<sup>\*</sup> Factory setting

#### **Result IDs**

86

Parameter	Description	Values
	Defines the number of result IDs.	0   1*   2
IDs	If the value of the option <b>Number of result IDs</b> is larger than 0,	
	the options Result ID 1, Description and Prefix/Default value	
	appear for every single result ID.	

Result ID 1	Defines the naming type of the result ID.	Manual with default* I Automatic counter
	Manual with default: The value of the result ID can be entered manually at method execution time.	
	<b>Automatic counter</b> : The system provides a value created from a prefix with an unique number (counter) appended.	
Description	Allows to define a label for each result ID.	Text (032 characters)
Default value	Defines a default value for the result ID. The value of the result ID can be changed manually while executing the method.	Text (032 characters)
	This option only appears when the option <b>Manual with default</b> is activated.	
Prefix	Defines a prefix for the result ID.	Text (032 characters)
	This option only appears when the option <b>Automatic counter</b> is activated.	

<sup>\*</sup> Factory setting

# 6.2.3.3 Weighing item

# Initial values for weighing

Parameter	Description	Values
Reference PCS	Defines a reference unit quantity. This allows you to determine the reference unit weight with a defined, fixed number of pieces.	Numeric (10* I 110000)
Reference average weight	Defines the average weight for one piece. The average weight of one piece serves as basis for the piece counting. During task execution, the balance calculates the actual number of pieces on the weighing pan based on the measured weight and the average weight of one piece.	Numeric
Target weight	Defines the target weight. The target weight will be shown in the weighing-in aid of the balance (SmartTrac). When a target weight including tolerances is defined, the SmartTrac indicates if the current display weight is in tolerance or not.	Numeric
-Tolerance	Defines the lower tolerance limit.	Numeric
	This option only appears when the option <b>Target weight</b> is activated.	
+Tolerance	Defines the upper tolerance limit.	Numeric
	This option only appears when the option <b>Target weight</b> is activated.	

<sup>\*</sup> Factory setting

### See also

Creating a method "Piece counting" ▶ Page 38

# **6.2.3.4** Weighing

# **Weighing settings**

Parameter	Description	Values
Tolerance profile	A tolerance profile stores all the necessary balance settings needed for a certain weighing method. It is possible to create different tolerance profiles for different weighing methods.	Available tolerance profiles are model-specific.

Weight capture mode	Defines the behavior when the button to add the result was tapped or the add result was triggered by the automatic weighing result creation.	Stable* I Immediate
	Stable: The system waits for a stable weight.	
	Immediate: The system doesn't wait for a stable weight. The system waits for the defined amount of seconds (Weight capture delay). After the weight capture delay, the weight value from the weight stream is captured.	
Weight capture delay	Defines the time in seconds the balance waits for capturing the weight after the button to add the result was tapped or the add result was triggered by the automatic weighing result creation.  This option only appears when the <b>Weight capture mode</b> is set to <b>Immediate</b> .	Numeric (5 seconds* I 060 seconds)

<sup>\*</sup> Factory setting

### **Statistics**

Parameter	Description	Values
Activate statistics	If <b>Activate statistics</b> is set to <b>Active</b> , the following statistics will be calculated:	Active I Inactive*
	Count: Number of items used for the statistics	
	Sum: Sum of all value (decimal places and unit according to the method settings)	
	Minimum: Smallest value (decimal places and unit according to the method settings)	
	Maximum: Largest value (decimal places and unit according to the method setting)	
	Range: Difference between the largest and smallest values (decimal places and unit according to the method settings)	
	Average: The values are summed up and divided by the number of values, rounded to 1 digit more than the configured decimal places in the method settings (unit according to the method settings)	
	Standard deviation: Standard deviation rounded to 1 digit more than the configured decimal places in the method settings (unit according to the method settings)	
	Relative standard deviation: Relative standard deviation (rounded to 2 decimal places, in %)	
	The statistical values are calculated and displayed as soon as a result is added or updated.	

<sup>\*</sup> Factory setting

# 6.2.3.5 Automation

Parameter	Description	Values
Barcode data target	If a barcode reader is connected to the balance, this option defines how the data is to be processed.	Keyboard Input* I Target weight value I Task ID 1 I Result ID 1 I
	<b>Keyboard Input</b> : The data is written in the currently open input window. If no input window is open, the data is ignored.	
	<b>Target weight value</b> : The barcode data is interpreted as a value for the target weight.	
	<b>Task ID 1</b> : The received barcode data is treated as identification text for this task ID.	
	<b>Result ID 1</b> : The received barcode data is treated as identification text for this result ID.	
Number of task IDs and Number of resimethod.  Make sure that the characters of the scale	The available items in the drop-down menu depend on the <b>Number of task IDs</b> and <b>Number of result IDs</b> specified for the method.	
	Make sure that the characters of the scanned barcode are compatible with the format of the field where they should be inserted.	

<sup>\*</sup> Factory setting

# Weighing automation

Parameter	Description	Values
Automatic zero	If <b>Automatic zero</b> is set to <b>Active</b> , the balance automatically zeros the balance when the weight falls below a predefined threshold.	Active I Inactive*
Automatic zero	Defines the threshold of the option <b>Automatic zero</b> .	Numeric
threshold	This option only appears when the option <b>Automatic zero</b> is activated.	
Tare Mode	Defines the tare mode.	None*   Automatic tare
	None: No automatic tare.	Pretare
	<b>Automatic tare</b> : The balance stores automatically the first stable weight as the tare weight.	
	<b>Pretare</b> : Allows you to enter manually a numerical entry of a fixed tare weight.	1
Automatic tare	Defines the threshold of the option <b>Tare Mode</b> .	Numeric
threshold	This value defines the minimum weight that must be applied to the weighing pan so that it is automatically stored as the tare weight. If the weight is below the limits, it is not automatically transferred to the tare memory.	
	Instead of entering the weight, the lightest tare container can be placed on the weighing pan and the button $\stackrel{*}{=}$ subsequently pressed. The applied weight is directly taken over as a limit.	
	This option only appears when the option <b>Tare Mode</b> is set to <b>Automatic tare</b> .	
Pretare value	Defines a weight value for the pretare function.	Numeric
	Instead of entering the value, the respective tare container can be placed on the weighing pan and the button $\stackrel{*}{=}$ subsequently pressed. The weight is directly taken over as pretare value.	
	This option only appears when the option <b>Tare Mode</b> is set to <b>Pretare</b> .	

Automatic result	Automatically generates a weighing result after a threshold is	None*   Without sample
, taloniano roodii	reached.	tare
	None: No automatic result will be generated.	
	<b>Without sample tare</b> : After a weight value that reached the threshold is being removed from the weighing pan, the balance is not being tared.	
Automatic result threshold	Defines the threshold of the option <b>Automatic result</b> . The result is automatically added to the protocol only if the weight of the sample is larger than this threshold. This option only appears when the option <b>Automatic result</b> is activated.	Numeric
Weight trigger	Defines the behaviour of the option <b>Automatic result threshold</b> .	Exceeding* I Falling below
	<b>Exceeding</b> : The weighing result is generated when the weight exceeds the defined threshold.	
	<b>Falling below</b> : The weighing result is generated when the weight falls below the defined threshold.	
	This parameter is only available if <b>Automatic result</b> is set to <b>Without sample tare</b> .	
Automatic tare after result	If set to <b>Active</b> , the balance is automatically tared when a result is added to the <b>Protocol</b> .	Active I Inactive*

<sup>\*</sup> Factory setting

When using **Automatic result**, make sure that the **Reference average weight** of one piece is larger than the **Automatic result threshold**.

#### See also

Creating a method "Piece counting" ▶ Page 38

### 6.2.3.6 Print / Export

This section is divided into the following subsections:

- Protocol printout and data export
- Label printout for task
- Label printout for weighing item

### Protocol printout and data export

### **Automatic data output**

Parameter	Description	Values
Strip printer	Activates/Deactivates automatic printing of the protocol on a strip printer when the <b>Complete</b> button is tapped. The data to be transmitted to the printer can be defined in the section <b>Template settings</b> .	Active I Inactive*
Weight value	Activates/Deactivates the option to automatically send the weighing value over USB or Ethernet when tapping <b>Add to protocol</b> .	Active I Inactive*

<sup>\*</sup> Factory setting

#### Protocol template for printout

This menu item can be used to define information to appear in the **Protocol**. The extensive menu is divided into six submenus in which options for the printout can be defined. Information can be enabled or disabled by activating or deactivating the corresponding checkbox.

Each individual parameter can set to **Inactive** or **Active** via the corresponding check box. To enable or disable all parameters at once, proceed as follows:

- 1 To deselect all check boxes at once, tap 🛅 Deselect all
  - ⇒ All parameters are set to **Inactive**.
- 2 To select all check boxes at once, tap 🗈 Select all
  - $\Rightarrow$  All parameters are set to **Active**.

# Template settings

Parameter	Description	Values
Header and Footer	Defines the header (with title, date and time) and/or footer (with signature and end line) to be printed/exported.	Header*   Title*   Date/ time   Signature*   Separating lines*   Group titles
Balance infor- mation	Defines which information about the balance is being printed/ exported.	Balance type I Balance ID* I Balance serial number I Software version
Quality infor- mation	Defines which quality information is being printed/exported.	Tolerance profile I Adjustment date/time I Routine test name I Routine test last execution date I Routine test result I GWP Approved state I Level state I MinWeigh state
Task information	Defines which information about the task is being printed/export.	Method name   Method comment   Task   IDs   Automatic result settings  Count   Sum   Average   Minimum   Maximum   Standard deviation   Relative standard deviation   PCS below —Tolerance   PCS above +Tolerance
Weighing item information	Defines which information about the weighing items is being printed/exported.	Show excluded weighing items   Result State*   Result   IDs*   GWP Approved state   Level state*   MinWeigh state   Tolerance state*   Target and tolerances state*   Reference PCS   Reference average weight*
Result detail information	Defines which information related to the result of the measurement is being printed/exported.	Weight*   Tare weight   Gross weight   Info weight   Date/time*   Stability

<sup>\*</sup> Factory setting

# Label printout for task

Parameter	Description	Values
Automatic label	When set to <b>Active</b> , the task label is automatically printed when	Active   Inactive*
printout for task	tapping Complete.	

91

Used template	Chooses the label template.	Available labels are
		shown below.

<sup>\*</sup> Factory setting

### **Field settings**

The content of each label field can be defined individually.

Parameter	Description	Values
Label field 1	Defines which information appears in each label field. The	Available entries depend
	number of label fields depends on the selected template.	on the method settings.

### **Barcode settings**

The content of each barcode field can be defined individually. This section is only available when the selected **Used template** contains at least one 2D code.

Parameter	Description	Values
Delimiter	Defines the delimiter between the barcode entries.	TAB I Form feed I
	The option <b>2D barcode delimiter</b> appears only when the selected <b>Used template</b> contains several 2D codes.	Carriage return   Space   User defined
Barcode field 1	Defines which information appears in each barcode. The number of the barcode fields depends on the selected template.	Available entries depend on the method settings.

### Label printout for weighing items

Parameter	Description	Values
Automatic label printout for task	When set to <b>Active</b> , the task label is automatically printed when tapping <b>Complete</b> .	Active I Inactive*
Used template	Chooses the label template.	Available labels are shown below.

<sup>\*</sup> Factory setting

### **Field settings**

The content of each label field can be defined individually.

Parameter	Description	Values
Label field 1	Defines which information appears in each label field. The	Available entries depend
	number of label fields depends on the selected template.	on the method settings.

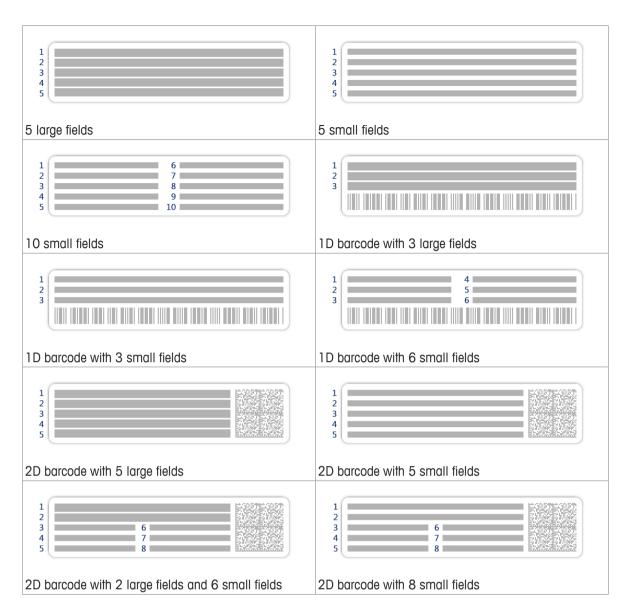
#### **Barcode settings**

The content of each barcode field can be defined individually. This section is only available when the selected **Used template** contains at least one 2D code.

Parameter	Description	Values
Delimiter	Defines the delimiter between the barcode entries.	TAB I Form feed I
	The option <b>2D barcode delimiter</b> appears only when the selected <b>Used template</b> contains several 2D codes.	Carriage return   Space   User defined
Barcode field 1	Defines which information appears in each barcode. The number of the barcode fields depends on the selected template.	Available entries depend on the method settings.

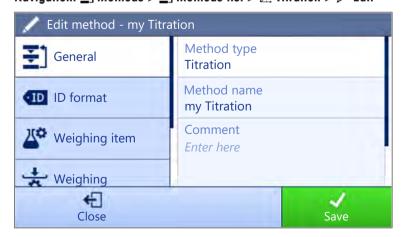
#### **Available Labels**

The following label layouts can be selected:



### 6.2.4 Settings: method "Titration"

Navigation:  $\Xi$  Methods  $> \Xi$  Methods list  $> \bot$ . Titration  $> \nearrow$  Edit



The section **Titration** is divided into the following subsections:

- ₹] General
- 40 ID format

Precision Balances Software Description

- Weighing item
- 🕏 Weighing
- **&** Automation
- Print / Export

### See also

Creating a method "Titration" ▶ Page 39

### 6.2.4.1 General

The **Method type** is defined in the wizard while creating the method and cannot be changed.

Parameter	Description	Values
Method name	Defines the name of the method. The system copies the method name that has been defined with the function <b>Method wizard</b> .	Text (122 characters)
Comment	The method can be described with a comment.	Text (0128 characters)
Lock method	Locks the method for other users and from further editing while running.	Active I Inactive*

<sup>\*</sup> Factory setting

# 6.2.4.2 ID format

#### Task IDs

Parameter	Description	Values
Number of task	Defines the number of task IDs.	0   1*   2
IDs	If the value of the option <b>Number of task IDs</b> is larger than 0, the options <b>Task ID</b> , <b>Description</b> and <b>Prefix/Default value</b> appear for every single task ID.	
Task ID 1	Defines the naming type of the task ID.	Manual with default* I
	<b>Manual with default</b> : The value of the task ID can be entered manually at method execution time.	Automatic timestamp
	<b>Automatic timestamp</b> : The system provides a value created from a prefix with the current date and time appended.	
Description	Allows to define a label for each task ID field.	Text (032 characters)
Default value	Defines a default value for the task ID. The value of the task ID can be changed manually while executing the method.	Text (032 characters)
	This option only appears when the option <b>Manual with default</b> is activated.	
Prefix	Defines a prefix for the task ID.	Text (032 characters)
	This option only appears when the option <b>Automatic timestamp</b> is activated.	

<sup>\*</sup> Factory setting

#### **Result IDs**

Parameter	Description	Values
Number of result	Defines the number of result IDs.	0   1*   2
IDs	If the value of the option <b>Number of result IDs</b> is larger than 0,	
	the options Result ID 1, Description and Prefix/Default value	
	appear for every single result ID.	

Result ID 1	Defines the naming type of the result ID.	Manual with default* I
	<b>Manual with default</b> : The value of the result ID can be entered manually at method execution time.	Automatic counter
	<b>Automatic counter</b> : The system provides a value created from a prefix with an unique number (counter) appended.	
Description	Allows to define a label for each result ID.	Text (032 characters)
Default value	Defines a default value for the result ID. The value of the result ID can be changed manually while executing the method.	Text (032 characters)
	This option only appears when the option <b>Manual with default</b> is activated.	
Prefix	Defines a prefix for the result ID.	Text (032 characters)
	This option only appears when the option <b>Automatic counter</b> is activated.	

<sup>\*</sup> Factory setting

# 6.2.4.3 Weighing item

# Initial values for weighing

Parameter	Description	Values
Unit	Defines the unit of the primary weighing result.	The available units depend on the balance model.
Target weight	Defines the target weight. The target weight will be shown in the weighing-in aid of the balance (SmartTrac). When a target weight including tolerances is defined, the SmartTrac indicates if the current display weight is in tolerance or not.	Numeric
-Tolerance	Defines the lower tolerance limit.	Numeric
	This option only appears when the option <b>Target weight</b> is activated.	
+Tolerance	Defines the upper tolerance limit.	Numeric
	This option only appears when the option <b>Target weight</b> is activated.	

# **6.2.4.4** Weighing

# **Weighing settings**

Parameter	Description	Values
Tolerance profile	A tolerance profile stores all the necessary balance settings needed for a certain weighing method. It is possible to create different tolerance profiles for different weighing methods.	Available tolerance profiles are model-specific.
Weight capture mode	Defines the behavior when the button to add the result was tapped or the add result was triggered by the automatic weighing result creation.	Stable* I Immediate
	Stable: The system waits for a stable weight.	
	Immediate: The system doesn't wait for a stable weight. The system waits for the defined amount of seconds (Weight capture delay). After the weight capture delay, the weight value from the weight stream is captured.	

delay	, ,	Numeric (5 seconds* I 060 seconds)
	This option only appears when the $\textbf{Weight capture mode}$ is set to $\textbf{Immediate}.$	

<sup>\*</sup> Factory setting

### **Electrostatic**

Parameter	Description	Values
Ionizer	Defines whether the ionizer is activated/deactivated.	Active   Inactive*

<sup>\*</sup> Factory setting

### See also

Creating a method "Titration" ▶ Page 39

### 6.2.4.5 Automation

Parameter	Description	Values
Barcode data target	If a barcode reader is connected to the balance, this option defines how the data is to be processed.	Keyboard Input*   Target weight value   Task ID 1   Result ID 1
	<b>Keyboard Input</b> : The data is written in the currently open input window. If no input window is open, the data is ignored.	
	<b>Target weight value</b> : The barcode data is interpreted as a value for the target weight.	
	<b>Task ID 1</b> : The received barcode data is treated as identification text for this task ID.	
	<b>Result ID 1</b> : The received barcode data is treated as identification text for this result ID.	
	The available items in the drop-down menu depend on the <b>Number of task IDs</b> and <b>Number of result IDs</b> specified for the method.	
	Make sure that the characters of the scanned barcode are compatible with the format of the field where they should be inserted.	

# Weighing automation

96

Parameter	Description	Values
Automatic zero	If <b>Automatic zero</b> is set to <b>Active</b> , the balance automatically zeros the balance when the weight falls below a predefined threshold.	Active I Inactive*
Automatic zero	Defines the threshold of the option Automatic zero.	Numeric
threshold	This option only appears when the option <b>Automatic zero</b> is activated.	
Tare Mode	Defines the tare mode.	None*   Automatic tare
	None: No automatic tare.	Pretare
	<b>Automatic tare</b> : The balance stores automatically the first stable weight as the tare weight.	
	<b>Pretare</b> : Allows you to enter manually a numerical entry of a fixed tare weight.	

Automatic tare	Defines the threshold of the option <b>Tare Mode</b> .	Numeric
threshold	This value defines the minimum weight that must be applied to the weighing pan so that it is automatically stored as the tare weight. If the weight is below the limits, it is not automatically transferred to the tare memory.	
	Instead of entering the weight, the lightest tare container can be placed on the weighing pan and the button \(\beta\) subsequently pressed. The applied weight is directly taken over as a limit.	
	This option only appears when the option <b>Tare Mode</b> is set to <b>Automatic tare</b> .	
Pretare value	Defines a weight value for the pretare function.	Numeric
	Instead of entering the value, the respective tare container can be placed on the weighing pan and the button \(\ddots\) subsequently pressed. The weight is directly taken over as pretare value.	
	This option only appears when the option <b>Tare Mode</b> is set to <b>Pretare</b> .	
Automatic result	Automatically generates a weighing result after a threshold is reached.	None*   Without sample tare
	None: No automatic result will be generated.	
	<b>Without sample tare</b> : After a weight value that reached the threshold is being removed from the weighing pan, the balance is not being tared.	
Automatic result threshold	Defines the threshold of the option <b>Automatic result</b> .  The result is automatically added to the protocol only if the weight of the sample is larger than this threshold.  This option only appears when the option <b>Automatic result</b> is activated.	Numeric
Weight trigger	Defines the behaviour of the option <b>Automatic result threshold</b> .	Exceeding*   Falling
	<b>Exceeding</b> : The weighing result is generated when the weight exceeds the defined threshold.	below
	<b>Falling below</b> : The weighing result is generated when the weight falls below the defined threshold.	
	This parameter is only available if <b>Automatic result</b> is set to <b>Without sample tare</b> .	
Automatic tare after result	If set to <b>Active</b> , the balance is automatically tared when a result is added to the <b>Protocol</b> .	Active   Inactive*

<sup>\*</sup> Factory setting

#### See also

Creating a method "Titration" ▶ Page 39

# 6.2.4.6 Print / Export

This section is divided into the following subsections:

- Protocol printout and data export
- Label printout for task
- Label printout for weighing item

Precision Balances Software Description

### Protocol printout and data export

#### **Automatic data output**

Parameter	Description	Values
Strip printer	Activates/Deactivates automatic printing of the protocol on a strip printer when the <b>Complete</b> button is tapped. The data to be transmitted to the printer can be defined in the section <b>Template settings</b> .	Active I Inactive*
Weight value	Activates/Deactivates the option to automatically send the weighing value over USB or Ethernet when tapping <b>Add to protocol</b> .	Active I Inactive*

<sup>\*</sup> Factory setting

#### Protocol template for printout

This menu item can be used to define information to appear in the **Protocol**. The extensive menu is divided into six submenus in which options for the printout can be defined. Information can be enabled or disabled by activating or deactivating the corresponding checkbox.

Each individual parameter can set to **Inactive** or **Active** via the corresponding check box. To enable or disable all parameters at once, proceed as follows:

- 1 To deselect all check boxes at once, tap To Deselect all
  - ⇒ All parameters are set to **Inactive**.
- 2 To select all check boxes at once, tap To Select all
  - ⇒ All parameters are set to **Active**.

#### **Template settings**

Parameter	Description	Values
Header and Footer	Defines the header (with title, date and time) and/or footer (with signature and end line) to be printed/exported.	Header*   Title*   Date/ time   Signature*   Separating lines*   Group titles
Balance infor- mation	Defines which information about the balance is being printed/exported.	Balance type I Balance ID* I Balance serial number I Software version
Quality infor- mation	Defines which quality information is being printed/exported.	Tolerance profile I Adjustment date/time I Routine test name I Routine test last execution date I Routine test result I GWP Approved state I Level state I MinWeigh state
Task information	Defines which information about the task is being printed/export.	Method name I Method comment I Task IDs I Custom unit settings I Automatic result settings I Count I Sum I Average I Minimum I Maximum I Range I Standard deviation I Relative standard deviation

Weighing item information	Defines which information about the weighing items is being printed/exported.	Show excluded weighing items I Result State I Result IDs* I GWP Approved state I Electrostatic charge I Level state I MinWeigh state I Tolerance state I Target and tolerances state
Result detail information	Defines which information related to the result of the measurement is being printed/exported.	Weight*   Tare weight   Gross weight   Info weight   Date/time*   Stability

<sup>\*</sup> Factory setting

Parameter	Description	Values
Weighing item information	Defines which information about the weighing items is being printed/exported.	Show excluded weighing items   Result State*   Result   IDs*   Density   Correction factor   GWP Approved state   Level state*   MinWeigh state   Tolerance state*   Target and tolerances state*
Task information	Defines which information about the task is being printed/export.	Method name   Method comment   Task IDs   Automatic result settings 

# Label printout for task

Parameter	Description	Values
Automatic label printout for task	When set to <b>Active</b> , the task label is automatically printed when tapping <b>Complete</b> .	Active I Inactive*
Used template	Chooses the label template.	Available labels are shown below.

<sup>\*</sup> Factory setting

### **Field settings**

The content of each label field can be defined individually.

Parameter	Description	Values
	l ''	Available entries depend
	number of label fields depends on the selected template.	on the method settings.

### **Barcode settings**

The content of each barcode field can be defined individually. This section is only available when the selected **Used template** contains at least one 2D code.

Parameter	Description	Values
Delimiter	Defines the delimiter between the barcode entries.	TAB I Form feed I
	The option <b>2D barcode delimiter</b> appears only when the selected <b>Used template</b> contains several 2D codes.	Carriage return   Space   User defined
Barcode field 1	Defines which information appears in each barcode. The number of the barcode fields depends on the selected template.	Available entries depend on the method settings.

### Label printout for weighing items

Parameter	Description	Values
Automatic label printout for task	When set to <b>Active</b> , the task label is automatically printed when tapping <b>Complete</b> .	Active I Inactive*
Used template	Chooses the label template.	Available labels are shown below.

<sup>\*</sup> Factory setting

### **Field settings**

The content of each label field can be defined individually.

Parameter	Description	Values
Label field 1	Defines which information appears in each label field. The	Available entries depend
	number of label fields depends on the selected template.	on the method settings.

### **Barcode settings**

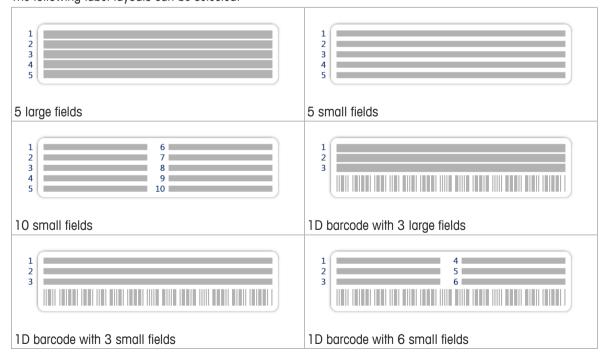
The content of each barcode field can be defined individually. This section is only available when the selected **Used template** contains at least one 2D code.

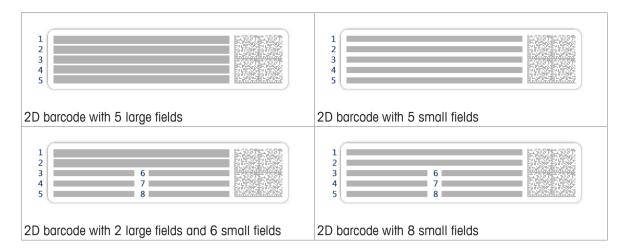
Parameter	Description	Values
Delimiter	Defines the delimiter between the barcode entries.	TAB I Form feed I
	The option <b>2D barcode delimiter</b> appears only when the selected <b>Used template</b> contains several 2D codes.	Carriage return   Space   User defined
Barcode field 1	Defines which information appears in each barcode. The number of the barcode fields depends on the selected template.	Available entries depend on the method settings.

#### **Available Labels**

100

The following label layouts can be selected:





# 6.2.5 Settings: method "Density determination"

Navigation: ₹ Methods > ₹ Methods list > ★ Density determination > / Edit



The section **Density determination** is divides into the following subsections:

- ₹] General
- 🖆 Density
- 💶 ID format
- Weighing item
- 🚼 Weighing
- & Automation
- Export / Export

#### See also

Creating a method "Density determination" ▶ Page 41

#### 6.2.5.1 General

The **Method type** is defined in the wizard while creating the method and cannot be changed.

Parameter	Description	Values
Method name	Defines the name of the method. The system copies the method name that has been defined with the function <b>Method wizard</b> .	Text (122 characters)
Comment	The method can be described with a comment.	Text (0128 characters)
Lock method	Locks the method for other users and from further editing while running.	Active I Inactive*

101

# **6.2.5.2** Density

The **Determination type** is defined in the wizard while creating the method and cannot be changed. If another **Determination type** is required, a new method must be created. All settings for all types of density determination are described here.

Parameter	Description	Values
Determination	Defines the type of density determination measurement.	Liquid (pycnometer) I
type	<b>Solid</b> determines the density of a solid with the help of a density kit.	Liquid (sinker)   Solid*
	Liquid (sinker): determines the density of a liquid.	
	<b>Liquid (pycnometer)</b> : determines the density of a liquid in a glass vessel like a pycnometer.	
Density unit	Defines the unit to be used for density determination.	g/cm3*   kg/m3   g/l
	$g/cm3 = grams per cm^3$ .	
	kg/m3 = kilograms per m3.	
	<b>g/I</b> = grams per liter.	
Density value	Defines the number of decimal places.	1   2   3*   4   5
decimal places	The density determination result can be displayed and recorded with 1 to 5 decimal places.	
Air density	Defines the correction factor for force calibration.	Active*   Inactive
compensation	<b>Active</b> = the density determination result is corrected by the force calibration correction factor and mean air density.	
	<b>Inactive</b> = no correction takes place.	

<sup>\*</sup> Factory setting

#### See also

Creating a method "Density determination" ▶ Page 41

### 6.2.5.3 ID format

102

#### Task IDs

Parameter	Description	Values
Number of task	Defines the number of task IDs.	0   1*   2
IDs	If the value of the option <b>Number of task IDs</b> is larger than 0, the options <b>Task ID</b> , <b>Description</b> and <b>Prefix/Default value</b> appear for every single task ID.	
Task ID 1	Defines the naming type of the task ID.	Manual with default* I
	<b>Manual with default</b> : The value of the task ID can be entered manually at method execution time.	Automatic timestamp
	<b>Automatic timestamp</b> : The system provides a value created from a prefix with the current date and time appended.	
Description	Allows to define a label for each task ID field.	Text (032 characters)
Default value	Defines a default value for the task ID. The value of the task ID can be changed manually while executing the method.	Text (032 characters)
	This option only appears when the option <b>Manual with default</b> is activated.	
Prefix	Defines a prefix for the task ID.	Text (032 characters)
	This option only appears when the option <b>Automatic timestamp</b> is activated.	

#### **Result IDs**

Parameter	Description	Values
Number of result	Defines the number of result IDs.	0   1*   2
IDs	If the value of the option <b>Number of result IDs</b> is larger than 0, the options <b>Result ID 1</b> , <b>Description</b> and <b>Prefix/Default value</b> appear for every single result ID.	
Result ID 1	Defines the naming type of the result ID.	Manual with default* I
	<b>Manual with default</b> : The value of the result ID can be entered manually at method execution time.	Automatic counter
	<b>Automatic counter</b> : The system provides a value created from a prefix with an unique number (counter) appended.	
Description	Allows to define a label for each result ID.	Text (032 characters)
Default value	Defines a default value for the result ID. The value of the result ID can be changed manually while executing the method.	Text (032 characters)
	This option only appears when the option <b>Manual with default</b> is activated.	
Prefix	Defines a prefix for the result ID.	Text (032 characters)
	This option only appears when the option <b>Automatic counter</b> is activated.	

<sup>\*</sup> Factory setting

### 6.2.5.4 Weighing item

The weighing item settings are different between the three types of density determination. The settings for **Initial** values for weighing are presented for each type individually.

### Initial values for weighing (Determination Type: Solid)

Parameter	Description	Values
Unit	Defines the unit.	The available units depend on the balance model.
Temperature	Defines the temperature of the solid.	Numeric ( 10°C30.9°C)
Aux. liquid	Defines the type of auxiliary liquid used for the determination of the density of a solid.	Distilled water* I Custom
Aux. liquid name	Defines the name of the custom liquid.	Text (032 character)
	This option only appears when Aux. liquid is set to Custom.	
Aux. liquid	Defines the liquid density of the custom liquid.	Numeric I 1.00000 g/
density	This option only appears when Aux. liquid is set to Custom.	cm3* (0.00001100 g/cm3)

<sup>\*</sup> Factory setting

# Initial values for weighing (Determination Type: Sinker)

Parameter	Description	Values
Unit	Defines the unit.	The available units depend on the balance model.
Temperature	Defines the temperature of the auxiliary liquid (distilled water or custom).	Numeric ( 10°C30.9°C)

103

Sinker volume	Defines the volume of the sinker in cm <sup>3</sup> .	Numeric
		(0.0001500 cm3)

# Initial values for weighing (Determination Type: Pycnometer)

Parameter	Description	Values
Unit	Defines the unit.	The available units depend on the balance model.
Temperature	Defines the temperature of the auxiliary liquid (distilled water or custom).	Numeric ( 10°C30.9°C)
Pycnometer volume	Defines volume of the pycnometer in cm <sup>3</sup> .	Numeric (0.000110000 cm3)
Pycnometer weight	Defines the weight of the pycnometer.	Numeric (0.00001222.009 g)

### See also

Creating a method "Density determination" ▶ Page 41

# **6.2.5.5** Weighing

# **Weighing settings**

Parameter	Description	Values
Tolerance profile	A tolerance profile stores all the necessary balance settings needed for a certain weighing method. It is possible to create different tolerance profiles for different weighing methods.	Available tolerance profiles are model-specific.
Weight capture mode	Defines the behavior when the button to add the result was tapped or the add result was triggered by the automatic weighing result creation.	Stable* I Immediate
	Stable: The system waits for a stable weight.	
	Immediate: The system doesn't wait for a stable weight. The system waits for the defined amount of seconds (Weight capture delay). After the weight capture delay, the weight value from the weight stream is captured.	
Weight capture delay	Defines the time in seconds the balance waits for capturing the weight after the button to add the result was tapped or the add result was triggered by the automatic weighing result creation.	Numeric (5 seconds* I 060 seconds)
	This option only appears when the <b>Weight capture mode</b> is set to <b>Immediate</b> .	

<sup>\*</sup> Factory setting

104

### **Statistics**

Parameter	Description	Values
Activate statistics	If <b>Activate statistics</b> is set to <b>Active</b> , the following statistics will be calculated:	Active I Inactive*
	Count: Number of items used for the statistics	
	Sum: Sum of all value (decimal places and unit according to the method settings)	
	Minimum: Smallest value (decimal places and unit according to the method settings)	
	Maximum: Largest value (decimal places and unit according to the method setting)	
	Range: Difference between the largest and smallest values (decimal places and unit according to the method settings)	
	Average: The values are summed up and divided by the number of values, rounded to 1 digit more than the configured decimal places in the method settings (unit according to the method settings)	
	Standard deviation: Standard deviation rounded to 1 digit more than the configured decimal places in the method settings (unit according to the method settings)	
	Relative standard deviation: Relative standard deviation (rounded to 2 decimal places, in %)	
	The statistical values are calculated and displayed as soon as a result is added or updated.	

<sup>\*</sup> Factory setting

# 6.2.5.6 Automation

Parameter	Description	Values
Barcode data target	If a barcode reader is connected to the balance, this option defines how the data is to be processed.	Keyboard Input*   Task   ID 1   Result ID 1
	<b>Keyboard Input</b> : The data is written in the currently open input window. If no input window is open, the data is ignored.	
	<b>Task ID 1</b> : The received barcode data is treated as identification text for this task ID.	
	<b>Result ID 1</b> : The received barcode data is treated as identification text for this result ID.	
	The available items in the drop-down menu depend on the <b>Number of task IDs</b> and <b>Number of result IDs</b> specified for the method.	
	Make sure that the characters of the scanned barcode are compatible with the format of the field where they should be inserted.	

<sup>\*</sup> Factory setting

### See also

Creating a method "Density determination" ▶ Page 41

Precision Balances Software Description

### 6.2.5.7 Print / Export

### Protocol printout and data export

#### **Automatic data output**

Parameter	Description	Values
Strip printer	Activates/Deactivates automatic printing of the protocol on a strip printer when the <b>Complete</b> button is tapped. The data to be transmitted to the printer can be defined in the section <b>Template settings</b> .	

<sup>\*</sup> Factory setting

#### Protocol template for printout

This menu item can be used to define information to appear in the **Protocol**. The extensive menu is divided into six submenus in which options for the printout can be defined. Information can be enabled or disabled by activating or deactivating the corresponding checkbox.

Each individual parameter can set to **Inactive** or **Active** via the corresponding check box. To enable or disable all parameters at once, proceed as follows:

- 1 To deselect all check boxes at once, tap To Deselect all
  - ⇒ All parameters are set to **Inactive**.
- 2 To select all check boxes at once, tap To Select all
  - ⇒ All parameters are set to **Active**.

#### **Template settings**

106

Parameter	Description	Values
Header and Footer	Defines the header (with title, date and time) and/or footer (with signature and end line) to be printed/exported.	Header*   Title*   Date/ time   Signature*   Separating lines*   Group titles
Balance information	Defines which information about the balance is being printed/ exported.	Balance type I Balance ID* I Balance serial number I Software version
Quality infor- mation	Defines which quality information is being printed/exported.	Tolerance profile I Adjustment date/time I Routine test name I Routine test last execution date I Routine test result I GWP Approved state I Level state I MinWeigh state
Task information	Defines which information about the task is being printed/export.	Method name I Method comment I Task IDs I Count I Average I Minimum I MaximumI Standard deviation I Relative standard deviation I Type of density determination I Decimal places for density weighing results I Include air density compensation in calculation of density

Weighing item information	Defines which information about the weighing items is being printed/exported.	Show excluded weighing items I Result State I Result IDs I GWP Approved state I Level state I MinWeigh state I Temperature I Auxiliary liquid name and density I Volume of sample I Weight of sample in air I Weight of sample in liquid
Result detail information	Defines which information related to the result of the measurement is being printed/exported.	Weight*   Tare weight   Gross weight   Info weight   Date/time*   Stability

<sup>\*</sup> Factory setting

# 6.3 Tests settings

# 6.3.1 Settings: eccentricity test

# 1. Name and type

Parameter	Description	Values
Test type	The test type has been pre-defined and cannot be changed in this menu.	Available test types
Name	Defines the name of the test.	Text (122 characters)
Test activated	Enables/disables the test.	Active*   Inactive
Show preparation instructions	If activated, a predefined preparatory instruction is displayed in the test sequence.	Active* I Inactive
Automatic print	When activated test results are immediately printed after the test result has been calculated on the enabled printer.	Active I Inactive*

<sup>\*</sup> Factory setting

# 2. Test specification

Parameter	Description	Values
Result calculation	Select whether the nominal weight or the conventional mass value (CMV) is used for the result calculation.	On nominal weight* I On actual weight (CMV)
	<b>On nominal weight</b> : Nominal value of a weight with a specific weight class.	
	<b>On actual weight (CMV)</b> : Conventional mass value (CMV) of a weight from the weight calibration certificate.	

<sup>\*</sup> Factory setting

## **Test point**

Parameter	Description	Values
_	Defines the value for the nominal weight. The nominal weight is defined as the expected weight of the measured object.	Numeric

107

Precision Balances Software Description

Weight class	Defines the weight class according to OIML or ASTM. Alternatively, a customized tolerance class can be created with <b>Own</b> .	M2   M3   ASTM000   ASTM00   ASTM0   ASTM0   ASTM1
		ASTM2   ASTM3   ASTM4   ASTM5   ASTM6   ASTM7   Own*

<sup>\*</sup> Factory setting

# **Eccentricity limits**

Parameter	Description	Values
Control limit	Defines the control limit.	Numeric I 0.2 %*
	The control limit is the error tolerance of a process with respect to its set value. Exceeding the control limit is a violation of quality requirements and therefore requires a correction of the process.	(0.001 100%)
	Result if the control limit is exceeded: The test failed, the balance is out of specification.	
Warning limit	Defines the warning limit.	Numeric I (0.001 100%)
	The warning limit is an upper or lower limit, which if exceeded or not reached, makes more stringent process monitoring necessary. The warning limit has to be smaller than the control limit.	
	Result if the warning limit is exceeded: The test is passed, but the difference is higher than expected.	

<sup>\*</sup> Factory setting

# 3. Test weights

## 4. Error management

Parameter	Description	Values
Block balance	Defines the behavior of the balance if a test has failed.	Active   Inactive*
	<b>Active</b> : The balance will be blocked after a specified amount of failed tests. In this case, the balance cannot be used anymore until a user with the appropriate right unblocks the balance.	
	Inactive: Blocking is not activated.	
Allowed number of retries	Defines the maximum allowed retries until the balance will be blocked.	Numeric (3* I 09)

<sup>\*</sup> Factory setting

108

Software Description Precision Balances

## 5. Test planning

Parameter	Description	Values
Planning type	Specifies the schedule for the test to be performed.	Manually*   Daily
	Manually: The test must be performed manually.	Weekly   Monthly
	<b>Daily</b> : The test will be performed automatically every day at the specified time.	Quarterly I Annually
	<b>Weekly</b> : The test is performed automatically at least once a week. Additional days can be selected if required.	
	<b>Monthly</b> : The test will be performed automatically every month at the specified day and time.	
	<b>Quarterly</b> : The test will be performed automatically every three months at the specified time.	
	<b>Annually</b> : The test will be performed automatically once a year at the specified time.	
Start time	Defines the start time for executing the task.	Time

<sup>\*</sup> Factory setting

#### **Notification**

This section does not appear when the option Planning type is set to Manually.

Parameter	Description	Values
(x) hours before test	Defines the time period before the notification informs about the upcoming expiry date.	Different values depending on the selected frequency (Planning type).
Notification every (x) hours	Defines the time interval before the next notification is issued.	Different values depending on the selected frequency (Planning type).

## **Preferred days**

This option only appears when the option Planning type is set to Weekly.

Parameter	Description	Values
Preferred days	Defines the preferred weekday for the execution of the test.	Monday I Tuesday I Wednesday I Thursday I Friday I Saturday I Sunday

#### Preferred day for execution

This section only appears when the option Planning type is set to Monthly.

Parameter	Description	Values
Preferred day for execution	Defines the preferred day for execution of the test.	None*   Monday   Tuesday   Wednesday   Thursday   Friday   Saturday   Sunday
Occurrence of day	Defines the occurrence of a given day of week within a month.	First*   Second   Third   Fourth

<sup>\*</sup> Factory setting

#### See also

- Creating an own new test ▶ Page 44
- Defining a test weight ▶ Page 45

Precision Balances Software Description

## 6.3.2 Settings: repeatability test

When parameter settings are different for the four repeatability tests you will be informed by a Note.

Parameter	Description	Values
Test type	The test type has been pre-defined and cannot be changed in this menu.	Available test types
Name	Defines the name of the test.	Text (122 characters)
Test activated	Enables/disables the test.	Active*   Inactive
Show preparation instructions	If activated, a predefined preparatory instruction is displayed in the test sequence.	Active*   Inactive
Automatic print	When activated test results are immediately printed after the test result has been calculated on the enabled printer.	Active I Inactive*

<sup>\*</sup> Factory setting

## 2. Test specification

Parameter	Description	Values
Result calculation	Select whether the nominal weight or the conventional mass value (CMV) is used for the result calculation.	On nominal weight* I On actual weight (CMV)
	<b>On nominal weight</b> : Nominal value of a weight with a specific weight class.	
	<b>On actual weight (CMV)</b> : Conventional mass value (CMV) of a weight from the weight calibration certificate.	
Number of repetitions	Defines the number of weight measurements of a series.	Numeric 10* I (215)

<sup>\*</sup> Factory setting

#### Tare

This section only appears when the option Test type is set to Repeatab. - Tare - 1 TP.

Parameter	Description	Values
Tare name	Defines a name for the tare weight.	Text (122 characters)
Minimum tare weight	Defines the minimum weight for the tare container. The test is only continued if a tare container with at least this weight is placed on the balance.	Numeric

<sup>\*</sup> Factory setting

## **Test point**

Parameter	Description	Values
Nominal weight	Defines the value for the nominal weight. The nominal weight is defined as the expected weight of the measured object.	Numeric
Weight class	Defines the weight class according to OIML or ASTM. Alternatively, a customized tolerance class can be created with <b>Own</b> .	E1   E2   F1   F2   M1   M2   M3   ASTMOOO   ASTMOO   ASTMO   ASTMO   ASTM1   ASTM2   ASTM3   ASTM4   ASTM5   ASTM6   ASTM7   Own*

<sup>\*</sup> Factory setting

110

Software Description Precision Balances

#### **Test limits**

Parameter	Description	Values
Control limit	Defines the control limit.	Numeric I 0.2 %*
	The control limit is the error tolerance of a process with respect to its set value. Exceeding the control limit is a violation of quality requirements and therefore requires a correction of the process.	(0.001 100%)
	Result if the control limit is exceeded: The test failed, the balance is out of specification.	
Warning limit	Defines the warning limit.	Numeric I (0.001 100%)
	The warning limit is an upper or lower limit, which if exceeded or not reached, makes more stringent process monitoring necessary. The warning limit has to be smaller than the control limit.	
	Result if the warning limit is exceeded: The test is passed, but the difference is higher than expected.	

<sup>\*</sup> Factory setting

## 3. Test weights

## 4. Error management

Parameter	Description	Values
Block balance	Defines the behavior of the balance if a test has failed.	Active   Inactive*
	<b>Active</b> : The balance will be blocked after a specified amount of failed tests. In this case, the balance cannot be used anymore until a user with the appropriate right unblocks the balance.	
	Inactive: Blocking is not activated.	
Allowed number of retries	Defines the maximum allowed retries until the balance will be blocked.	Numeric (3* I 09)

<sup>\*</sup> Factory setting

# 5. Test planning

Parameter	Description	Values
Planning type	Specifies the schedule for the test to be performed.	Manually*   Daily
	Manually: The test must be performed manually.	Weekly I Monthly I Quarterly I Annually
	<b>Daily</b> : The test will be performed automatically every day at the specified time.	
	<b>Weekly</b> : The test is performed automatically at least once a week. Additional days can be selected if required.	
	<b>Monthly</b> : The test will be performed automatically every month at the specified day and time.	
	<b>Quarterly</b> : The test will be performed automatically every three months at the specified time.	
	<b>Annually</b> : The test will be performed automatically once a year at the specified time.	
Start time	Defines the start time for executing the task.	Time

<sup>\*</sup> Factory setting

## **Notification**

This section does not appear when the option Planning type is set to Manually.

Precision Balances Software Description

Parameter	Description	Values
(x) hours before test	Defines the time period before the notification informs about the upcoming expiry date.	Different values depending on the selected frequency (Planning type).
Notification every (x) hours	Defines the time interval before the next notification is issued.	Different values depending on the selected frequency (Planning type).

<sup>\*</sup> Factory setting

## Preferred day for execution

This option only appears when the option Planning type is set to Weekly.

Parameter	Description	Values
Preferred day for execution	Defines the preferred day for execution of the test.	None*   Monday   Tuesday   Wednesday   Thursday   Friday
		Saturday I Sunday

#### **Preferred days**

This section only appears when the option Planning type is set to Monthly.

Parameter	Description	Values
Preferred day for execution	Defines the preferred day for execution of the test.	None*   Monday   Tuesday   Wednesday   Thursday   Friday   Saturday   Sunday
Occurrence of day	Defines the occurrence of a given day of week within a month.	First*   Second   Third   Fourth

<sup>\*</sup> Factory setting

#### See also

- Creating an own new test ▶ Page 44
- Defining a test weight ▶ Page 45

## 6.3.3 Settings: sensitivity test

When parameter settings are different for the four sensitivity tests you will be informed by a Note.

#### 1. Name and Type

Parameter	Description	Values
Test type	The test type has been pre-defined and cannot be changed in this menu.	Available test types
Name	Defines the name of the test.	Text (122 characters)
Test activated	Enables/disables the test.	Active* I Inactive
Show preparation instructions	If activated, a predefined preparatory instruction is displayed in the test sequence.	Active* I Inactive
Automatic print	When activated test results are immediately printed after the test result has been calculated on the enabled printer.	Active I Inactive*

<sup>\*</sup> Factory setting

112

Software Description Precision Balances

## 2. Test specification

Parameter	Description	Values
Result calculation	Select whether the nominal weight or the conventional mass value (CMV) is used for the result calculation.	On nominal weight* I On actual weight (CMV)
	<b>On nominal weight</b> : Nominal value of a weight with a specific weight class.	
	<b>On actual weight (CMV)</b> : Conventional mass value (CMV) of a weight from the weight calibration certificate.	

<sup>\*</sup> Factory setting

## Tare



This section only appears when the option Test type is set to Sensitivity - Tare - 1 TP or Sensitivity - Tare -2 TP.

Parameter	Description	Values
Tare name	Defines a name for the tare weight.	Text (122 characters)
Minimum tare weight	Defines the minimum weight for the tare container. The test is only continued if a tare container with at least this weight is placed on the balance.	Numeric

## Test point

Depending on the selected test, the following options can be defined for one or two test points:

Parameter	Description	Values
Nominal weight	Defines the value for the nominal weight. The nominal weight is defined as the expected weight of the measured object.	Numeric
Weight class	Defines the weight class according to OIML or ASTM. Alternatively, a customized tolerance class can be created with <b>Own</b> .	E1   E2   F1   F2   M1   M2   M3   ASTM000   ASTM00   ASTM0   ASTM0   ASTM1   ASTM2   ASTM3   ASTM4   ASTM5   ASTM6   ASTM7   Own*
Control limit	Defines the control limit.  The control limit is the error tolerance of a process with respect to its set value. Exceeding the control limit is a violation of quality requirements and therefore requires a correction of the process.  Result if the control limit is exceeded: The test failed, the balance is out of specification.	Numeric I 0.2 %* (0.001 100%)
Warning limit	Defines the warning limit.  The warning limit is an upper or lower limit, which if exceeded or not reached, makes more stringent process monitoring necessary. The warning limit has to be smaller than the control limit.  Result if the warning limit is exceeded: The test is passed, but the difference is higher than expected.	Numeric I (0.001 100%)

<sup>\*</sup> Factory setting

**Precision Balances** Software Description

## 3. Test weights

#### 4. Error management

Parameter	Description	Values
Block balance	Defines the behavior of the balance if a test has failed.	Active I Inactive*
	<b>Active</b> : The balance will be blocked after a specified amount of failed tests. In this case, the balance cannot be used anymore until a user with the appropriate right unblocks the balance.	
	Inactive: Blocking is not activated.	
Allowed number of retries	Defines the maximum allowed retries until the balance will be blocked.	Numeric (3* I 09)

#### 5. Test planning

\* Factory setting

Parameter	Description	Values
Planning type	Specifies the schedule for the test to be performed.	Manually*   Daily
	Manually: The test must be performed manually.	Weekly   Monthly
	<b>Daily</b> : The test will be performed automatically every day at the specified time.	Quarterly I Annually
	<b>Weekly</b> : The test is performed automatically at least once a week. Additional days can be selected if required.	
	<b>Monthly</b> : The test will be performed automatically every month at the specified day and time.	
	<b>Quarterly</b> : The test will be performed automatically every three months at the specified time.	
	<b>Annually</b> : The test will be performed automatically once a year at the specified time.	
Start time	Defines the start time for executing the task.	Time

<sup>\*</sup> Factory setting

#### **Notification**

This section does not appear when the option Planning type is set to Manually.

Parameter	Description	Values
(x) hours before test	Defines the time period before the notification informs about the upcoming expiry date.	Different values depending on the selected frequency (Planning type).
Notification every (x) hours	Defines the time interval before the next notification is issued.	Different values depending on the selected frequency (Planning type).

## **Preferred days**

114

This option only appears when the option Planning type is set to Weekly.

Parameter	Description	Values
Preferred days	Defines the preferred weekday for the execution of the test.	Monday I Tuesday I Wednesday I Thursday I Friday I Saturday I Sunday

## Preferred day for execution

This section only appears when the option Planning type is set to Monthly.

Software Description Precision Balances

Parameter	Description	Values
Preferred day for execution	Defines the preferred day for execution of the test.	None*   Monday   Tuesday   Wednesday   Thursday   Friday   Saturday   Sunday
Occurrence of day	Defines the occurrence of a given day of week within a month.	First*   Second   Third   Fourth

<sup>\*</sup> Factory setting

#### See also

- Creating an own new test ▶ Page 44
- Defining a test weight ▶ Page 45

# **6.4** Adjustments settings

## 1. Strategy

Parameter	Description	Values
Strategy	Defines the adjustment method.	Internal adjustment* I
	When the options <b>No adjustment</b> or <b>External adjustment</b> are activated other options are not available.	External adjustment I No adjustment
Automatic print	When activated adjustment results are immediately printed after the result has been calculated on the enabled strip printer.	Active I Inactive*

<sup>\*</sup> Factory setting

## 2. Specification

Parameter	Description	Values
'As found' test	At the start of the adjustment sequence, an internal test (sensitivity) is performed to ascertain the current status. The input test has automatically started when the adjustment sequence is activated and the result is displayed and recorded.	Active I Inactive*
'As left' test	When the adjustment is complete, an internal test (sensitivity) is performed.	Active I Inactive*



This settings only appear when one of the options 'As found' test or 'As left' test is activated.

Parameter	Description	Values
Control limit	Defines the control limit.  The control limit is the error tolerance of a process with respect to its set value. Exceeding the control limit is a violation of quality requirements and therefore requires a correction of the process.	Numeric   0.1 %* (0.001 100%)
	Result if the control limit is exceeded: The adjustment failed, the balance is out of specification.	
Warning limit	Defines the warning limit.  The warning limit is an upper or lower limit, which if exceeded or not reached, makes more stringent process monitoring necessary. The warning limit has to be smaller than the control limit.	Numeric (0.001100%)
	Result if the warning limit is exceeded: The adjustment is passed, but the difference is higher than expected.	

<sup>\*</sup> Factory setting

**Precision Balances** Software Description

## 3. Error management

Parameter	Description	Values
Block balance	Defines the behavior of the balance if the adjustment has failed.	Active I Inactive*
	<b>Active</b> : The balance will be blocked after the adjustment has failed. In this case, the balance can not be used anymore until a user with the appropriate right unblocks the balance.	
	Inactive: The balance will not be blocked.	

<sup>\*</sup> Factory setting

## 4. Planning

Parameter	Description	Values
Start after leveling	Defines if the internal adjustment starts after leveling.	Active I Inactive*
Start after temperature change	Defines if the internal adjustment starts automatically after a temperature change of 1°C.	Active I Inactive*
Schedule	Defines when the adjustment is being performed. It is possible to define several start times (1-3) per day. It can also be defined on what day/s the adjustment is being performed.	Inactive   1 start time   2 start times*   3 start times
Start time 1	Defines the start time for execution of the task.	Time
Start time 2	Defines the start time for second execution of the task	Time
Preferred days	Defines the days for the scheduled adjustments. This section only appears with a defined start time.	Monday I Tuesday I Wednesday I Thursday I Friday I Saturday I Sunday

<sup>\*</sup> Factory setting

## See also

116

- Defining a test weight ▶ Page 45
- Editing an internal adjustment ▶ Page 51
- Editing an external adjustment ▶ Page 51

Software Description Precision Balances

## 7 Maintenance

To guarantee the functionality of the balance and the accuracy of the weighing results, a number of maintenance actions must be performed by the user.

## 7.1 Maintenance tasks

Maintenance action	Recommended interval	Remarks
Performing an internal adjustment	<ul> <li>Daily</li> <li>After cleaning</li> <li>After leveling</li> <li>After changing the location</li> </ul>	see "Adjustments"
Performing routine tests (eccentricity test, repeatability test, sensitivity test). METTLER TOLEDO recommends to at least perform a sensitivity test.	<ul> <li>After cleaning</li> <li>After assembling the balance</li> <li>After a software update</li> <li>Depending on your internal regulations (SOP)</li> </ul>	see "Tests"
Cleaning	<ul> <li>After every use</li> <li>After changing the substance</li> <li>Depending on the degree of pollution</li> <li>Depending on your internal regulations (SOP)</li> </ul>	see "Cleaning"
Updating the software	<ul><li>Depending on your internal regulations (SOP).</li><li>After a new software release.</li></ul>	see "Software update"

#### See also

- Adjustments ▶ Page 51
- Tests ▶ Page 43
- Cleaning ▶ Page 117
- Software update ▶ Page 119

# 7.2 Cleaning

# 7.2.1 Cleaning agents

In the following table, cleaning tool and cleaning agents recommended by METTLER TOLEDO are listed. Pay attention to the concentration of the agents specified in the table.

				<u>'</u>							
			Tools			Cleaning agents					
		Paper tissue	Brush	Dishwasher	Water	Acetone	Ethanol (70%)	Isopropanol (70%)	Hydrochloric acid (3-10%)	Sodium hydroxide (0.2-1.0 M)	Peracetic acid (2-3%)
Around the balance	Balance housing	1	R	_	R	_	R	<b>√</b>	R	R	R
	Feet	1	R	_	R	_	R	<b>√</b>	R	R	R

Precision Balances Maintenance

		Paper fissue	Brush	Dishwasher	Water	Acetone	Ethanol (70%)	Isopropanol (70%)	Hydrochloric acid (3-10%)	Sodium hydroxide (0.2-1.0 M)	Peracetic acid (2-3%)
Balance	Terminal	✓	R	_	<b>√</b>	PR	R	R	R	R	R
terminal	Display	1	_	_	1	PR	R	R	R	R	R
	Terminal cover	✓	R	_	✓	_	R	R	R	PR	PR
Balance draft shield	Glass panels	✓	R	R	R	PR	<b>√</b>	1	R	R	R
	Glass-free panels	✓	R	_	R	_	<b>√</b>	<b>√</b>	R	R	R
	Non- removable handles and frames	✓	R	_	R	PR	1	1	R	R	R
Weighing area	Weighing pan	R	R	1	R	R	1	1	R	R	R
	Drip tray	R	R	<b>√</b>	R	R	1	<b>✓</b>	_	_	R

#### Legend

- ✓ Best recommendation by METTLER TOLEDO; can be used without limitation.
- R Recommended by METTLER TOLEDO; can be used without limitation.
- PR Partially recommended by METTLER TOLEDO: individual resistance to acid and alkali must be evaluated, including dependence to the time exposure.
- Not recommend. High risk for damage.

## 7.2.2 Cleaning the balance



## **MARNING**

#### Death or serious injury due to electric shock

Contact with parts carrying a live current can lead to injury and death.

- 1 Disconnect the instrument from the power supply prior to cleaning and maintenance.
- 2 Prevent liquid from entering the instrument, terminal or AC/DC adapter.



## **NOTICE**

#### Damage due to improper cleaning

Improper cleaning can damage the load cell or other essential parts.

- 1 Do not use any cleaning agents other than the ones specified in the "Reference Manual" or "Cleaning Guide".
- 2 Do not spray or pour liquids on the instrument. Always use a moistened lint-free cloth or a tissue
- 3 Always wipe out from inside to outside of the instrument.

#### Cleaning around the balance

- Remove any dirt or dust around the balance and avoid further contaminations.

118 | Maintenance Precision Balances

#### Cleaning the terminal

Clean the terminal with a damp cloth or a tissue and a mild cleaning agent.

#### Cleaning the removable parts

 Clean the removed part with a damp cloth or a tissue and a mild cleaning agent or clean in a dishwasher up to 80 °C.

#### Cleaning the weighing unit

- 1 Disconnect the balance from the AC/DC adapter.
- 2 Use a lint-free cloth moistened with a mild cleaning agent to clean the surface of the balance.
- 3 Remove powder or dust with a disposable tissue first.
- 4 Remove sticky substances with a damp lint-free cloth and a mild solvent, e.g., isopropanol or ethanol 70%.



Useful details to avoid soiling the instrument are described in the Mettler-Toledo GmbH "SOP for Cleaning a Balance".

#### 7.2.3 Putting into operation after cleaning

- 1 Reassemble the balance.
- 2 Check that the draft shield doors (top, sides) open and close normally.
- 3 Check if the terminal is connected to the balance.
- 4 Reconnect the balance to the AC/DC adapter.
- 5 Check the level status, level the balance if necessary.
- 6 Respect the warm-up time specified in the "Technical Data".
- 7 Perform an internal adjustment.
- 8 Perform a routine test according to the internal regulations of your company. METTLER TOLEDO recommends to perform a sensitivity test after cleaning the balance.
- 9 Press  $\rightarrow$  **0**  $\leftarrow$  to zero the balance.
- ⇒ The balance is ready to be used.

#### See also

- Leveling the balance ▶ Page 29
- Performing a sensitivity test ▶ Page 48
- Technical Data ▶ Page 124

## 7.3 Software update

Search for software downloads

www.mt.com/labweighing-software-download

119

Please contact a METTLER TOLEDO service representative if you need support updating the software. METTLER TOLEDO recommends saving the data on a storage device before updating the software.

Navigation: 🛊 Balance menu > 🖺 Maintenance > 😃 Software update

#### See also

Exporting data and settings ▶ Page 54

#### 7.3.1 Updating the software

- A USB storage device containing the software installer (zip file format) is connected to the balance.
- 1 Tap ♥ Balance menu > 🖺 Maintenance > ## Software update
- 2 Select Update software and tap →Next.
  - ⇒ An update wizard opens and will lead you step-by-step through the procedure.

Precision Balances Maintenance

## 7.3.2 Restoring the software to the previous version

The current software version can be rolled back to the previous software version.

- 1 Tap ♣ Balance menu > 🖺 Maintenance > 😃 Software update
- 2 Select Restore the software to the previous version, and tap → Next
  - ⇒ An update wizard opens and will lead you step-by-step through the procedure.

## 7.3.3 Putting into operation after software update

- 1 Press (b) to switch on the balance.
- 2 Check the level status, level the balance if necessary.
- 3 Perform an internal adjustment.
- 4 Perform a routine test according to the internal regulations of your company.
- 5 Press  $\rightarrow$  **0**  $\leftarrow$  to zero the balance.
- ⇒ The balance is ready to be used.

#### See also

Leveling the balance ▶ Page 29

Maintenance Precision Balances

# 8 Troubleshooting

Possible errors with their cause and remedy are described in the following chapter. If there are errors that cannot be corrected through these instructions, contact METTLER TOLEDO.

# 8.1 Error messages

Error message	Possible cause	Diagnostic	Remedy
Balance reset failed	Communication failure	_	Disconnect the power cable and reconnect after a few seconds.
The system has no valid date and time set	Low battery	_	Connect to the power outlet and let the battery charge for two to three days.
Weight cannot be determined	Data signal problems of electronics.	_	Disconnect the power cable and reconnect after a few seconds.
	Bad connection between the terminal and the weighing unit.	Check the cable for damage (kinked, twisted or broken pins).	Replace the terminal cable.
Cannot start adjustment	Initial zero was not reached when the balance was switched on.	_	Disconnect the power cable and reconnect after a few seconds.
Preventive performance optimization	The balance memory (RAM) is too ful.	_	Complete the current task. Disconnect the power cable and reconnect after a few seconds.

# 8.2 Error symptoms

Error symptom	Possible cause	Diagnostic	Remedy
The display is dark.	The instrument is on standby.	_	Switch on the instrument.
	There is no power	Check the connection to the AC/DC adapter and the power outlet.	Connect the weighing unit to the power outlet. See "Connecting the balance"
	The terminal is not connected to the instrument.	Check the terminal cable connection.	Connect the terminal cable to the instrument.
	The terminal cable is defective.	Check the cable for damage (kinked, twisted or broken pins).	Replace the terminal cable.
	The wrong AC/DC adapter is connected to the instrument.	Check it, see "Technical Data".	Use the correct AC/DC adapter.
	The AC/DC adapter is defective.	The LED on the AC/DC adapter does not turn on.	Replace the AC/DC adapter.
The value on the display oscillates.	Vibrations on the weighing bench, e.g., building vibrations, foot traffic	Place a beaker with water on the weighing bench. Vibrations cause ripples on the water surface.	Protect the weighing location against vibrations, e.g. with an absorber.
			Find a different weighing location.

Precision Balances Troubleshooting

Error symptom	Possible cause	Diagnostic	Remedy
The value on the display oscillates.	Draft due to untight draft shield and/or open window.	Check the draft shield for gaps.	Fix the draft shield. Close the window.
	The weighing sample is electrostatically charged.	Check if the weighing result is stable when using	Increase the air humidity in the weighing chamber.
		a test weight.	Use an ionizer. See "Accessories".
	The location is not suitable for weighing.	_	Follow the requirements for the location. See "Selecting the location".
	Something is touching the weighing pan.	Check for touching parts or dirt.	Remove touching parts. Clean the balance.
The value on the display is drifting towards plus or minus.	The weighing sample absorbs moisture or evaporates moisture.	Check if the weighing result is stable when using a test weight.	Cover the weighing sample.
	The weighing sample is electrostatically charged.	Check if the weighing result is stable when using a test weight.	Increase the air humidity in the weighing chamber. Use an ionizer. See
			"Accessories".
	The weighing sample is warmer or colder than the air in the weighing chamber.	Check if the weighing result is stable when using an acclimatized test weight.	Bring the sample to room temperature.
	The balance has not yet warmed up.	_	Let the balance warm up. Adequate warm up time is specified in the "General data".
The display shows overload or underload.	The wrong weighing pan is installed.	Slightly lift or press the weighing pan to see if the weight appears on the display.	Install the proper weighing pan.
	No weighing pan is installed.	_	Install the proper weighing pan.
	Incorrect zero point at power on.	_	Disconnect the power cable and reconnect after a few seconds.
	The balance is not adjusted.	_	Perform a internal adjustment. See "Internal adjustment".
The draft shield front panel is not exactly 90° from the weighing platform		_	Contact METTLER TOLEDO representative to adjust the front panel.
The draft shield side doors are not exactly closed.	The draft shield side doors are not perfectly adjusted.	_	Contact METTLER TOLEDO representative to adjust the side doors.
The user interface responds slowly.	Too many results are included in the <b>Protocol</b> of a task.	Check the <b>Protocol</b> of every running and pending task.	Complete all tasks: For each task in the list of <b>Tasks</b> , select the task, tap <b>Continue task</b> , and tap <b>Complete</b> .

Troubleshooting Precision Balances

# 8.3 Putting into operation after fixing an error

After fixing an error, perform the following steps to put the balance into operation:

- Ensure that the balance is completely reassembled and cleaned.
- Reconnect the balance to the AC/DC adapter.

Precision Balances Troubleshooting

#### 9 Technical Data

#### 9.1 General data

**Power supply** 

AC/DC adapter: Primary: 100 - 240 V~, 50/60 Hz

Secondary: 12 V DC, 5 A, LPS, SELV

Cable for AC/DC adapter: 3-core, with country-specific plug

Balance power consumption:  $12 \text{ V DC} \pm 10\%$ , 2.25 A

Protection and standards

Overvoltage category: II
Degree of pollution: 2

Standards for safety and EMC: See Declaration of Conformity

Range of application: Use only indoors in dry locations

**Environmental conditions** 

124

The limit values apply when the balance is used under the following environmental conditions:

Height above mean sea level: Up to 5000 m Ambient temperature: +10 - +30 °C

Temperature change, max.: 5 °C/h

Relative air humidity: 30 - 70%, non-condensing

Warm-up time: At least 30 minutes after connecting the balance to the power

supply. When switched on from standby, the instrument is ready

for operation immediately.

The balance can be used under the following environmental conditions. However, the weighing performances of the balance may be outside the limit values:

Ambient temperature:  $+5 - +40 \,^{\circ}\text{C}$ 

Relative air humidity: 20% to max. 80% at 31 °C, decreasing linearly to 50% at

40 °C, non-condensing

The balance can be disconnected and stored in its packaging under the following conditions:

Ambient temperature:  $-25 - +70 \, ^{\circ}\text{C}$ 

Relative air humidity: 10 – 90%, non-condensing

Technical Data Precision Balances

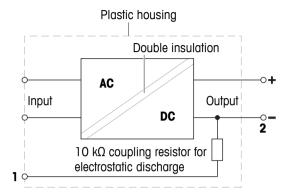
## 9.2 Explanatory notes for the METTLER TOLEDO AC/DC adapter

The certified external AC/DC adapter complies to the requirements for Class II double insulated equipment. It is not provided with a protective earth connection but with a functional earth connection for EMC purposes. This earth connection **is not** a safety feature. Further information about the compliance of our products can be found in the "Declaration of Conformity" delivered with every product.

In case of testing with regard to the European Directive 2001/95/EC, the AC/DC adapter and the instrument have to be handled as Class II double insulated equipment.

Consequently, a grounding test is not required. It is not necessary to carry out a grounding test between the earth connector of the power plug and any exposed part of the metallic housing of the instrument.

Because the instrument is sensitive to static charges, a leakage resistor of 10 k $\Omega$  is connected between the earth connector (1) and the negative pole (2) of the AC/DC adapter. The arrangement is shown in the equivalent circuit diagram. This resistor is not part of the electrical safety arrangement and does not require testing at regular intervals.



125

Precision Balances Technical Data

# 9.3 Model-specific data

# 9.3.1 S platform

# 9.3.1.1 Readability 1 mg, with MagicCube Draft Shield and SmartPan

	XSR303S	XSR603S	XSR1203S
Limit values			
Capacity	310 g	610 g	1210 g
Nominal load	300 g	600 g	1200 g
Readability	1 mg	1 mg	1 mg
Capacity of fine range	-	-	-
Readability in fine range	-	-	-
Repeatability	0.9 mg	0.9 mg	0.8 mg
Repeatability in fine range	-	-	-
Linearity deviation	2 mg	2 mg	2 mg
Eccentricity deviation (at test load)	3 mg (100 g)	3 mg (200 g)	3 mg (500 g)
Sensitivity offset (at nominal load) 1)	6 mg	4.5 mg	6 mg
Sensitivity temperature drift	0.0005%/°C	0.0002%/°C	0.0002%/°C
Typical values			
Repeatability	0.5 mg	0.5 mg	0.4 mg
Repeatability in fine range	-	-	-
Linearity deviation	0.6 mg	0.6 mg	0.6 mg
Eccentricity deviation (at test load)	1 mg (100 g)	1 mg (200 g)	1 mg (500 g)
Sensitivity offset (at nominal load) 1)	1.2 mg	1.2 mg	1.5 mg
Minimum weight (USP, tolerance = $0.10\%$ ) <sup>2)</sup>	1 g	1 g	820 mg
Minimum weight (tolerance = 1%)	100 mg	100 mg	82 mg
Settling time	1.5 s	1.5 s	1.5 s
Dimensions & other specifications			
Balance dimensions (W×D×H)	194×390×281 mm	194×390×281 mm	194×390×281 mm
Weighing pan dimensions (W×D)	127×127 mm	127×127 mm	127×127 mm
Usable height of draft shield	175 mm	175 mm	175 mm
Balance weight	7 kg	7 kg	7 kg
Weights for routine testing			
Weights (OIML class)	10 g (F2)/ 200 g (F2)	20 g (F2)/ 500 g (F2)	50 g (F2)/ 1000 g (F2)
Weights (ASTM class)	10 g (ASTM 1)/ 200 g (ASTM 1)	20 g (ASTM 1)/ 500 g (ASTM 1)	50 g (ASTM 1)/ 1000 g (ASTM 1)

after adjustment with internal weight

126

Technical Data Precision Balances

determined at 5% load, k = 2

# 9.3.1.2 Readability 1 mg, with SmartPan

	XSR303SN	XSR603SN				
Limit values		Action				
Capacity	310 g	610 g				
Nominal load	300 g	600 g				
Readability	1 mg	1 mg				
Capacity of fine range	-	-				
Readability in fine range	-	-				
Repeatability	0.9 mg	0.9 mg				
Repeatability in fine range	-	-				
Linearity deviation	2 mg	2 mg				
Eccentricity deviation (at test load)	3 mg (100 g)	3 mg (200 g)				
Sensitivity offset (at nominal load) 1)	6 mg	4.5 mg				
Sensitivity temperature drift	0.0005%/°C	0.0002%/°C				
Typical values						
Repeatability	0.5 mg	0.5 mg				
Repeatability in fine range	-	-				
Linearity deviation	0.6 mg	0.6 mg				
Eccentricity deviation (at test load)	1 mg (100 g)	1 mg (200 g)				
Sensitivity offset (at nominal load) 1)	1.2 mg	1.2 mg				
Minimum weight (USP, tolerance = 0.10%) <sup>2)</sup>	1 g	1 g				
Minimum weight (tolerance = 1%)	100 mg	100 mg				
Settling time	1.5 s	1.5 s				
Dimensions & other specifications						
Balance dimensions (W×D×H)	194×390×102 mm	194×390×102 mm				
Weighing pan dimensions (W×D)	127×127 mm	127×127 mm				
Usable height of draft shield	-	-				
Balance weight	5.4 kg	5.4 kg				
Weights for routine testing	Weights for routine testing					
Weights (OIML class)	10 g (F2)/ 200 g (F2)	20 g (F2)/ 500 g (F2)				
Weights (ASTM class)	10 g (ASTM 1)/ 200 g (ASTM 1)	20 g (ASTM 1)/ 500 g (ASTM 1)				

after adjustment with internal weight

Precision Balances Technical Data

determined at 5% load, k = 2

# 9.3.1.3 Readability 10 mg, with SmartPan

	XSR1202S	XSR2002S	XSR4002S
Limit values			
Capacity	1210 g	2.1 kg	4.1 kg
Nominal load	1200 g	2 kg	4 kg
Readability	10 mg	10 mg	10 mg
Capacity of fine range	-	-	-
Readability in fine range	-	-	-
Repeatability	8 mg	8 mg	8 mg
Repeatability in fine range	-	-	-
Linearity deviation	20 mg	20 mg	20 mg
Eccentricity deviation (at test load)	20 mg (500 g)	30 mg (1 kg)	30 mg (2 kg)
Sensitivity offset (at nominal load) 1)	60 mg	60 mg	60 mg
Sensitivity temperature drift	0.0003%/°C	0.0003%/°C	0.0003%/°C
Typical values			
Repeatability	4 mg	4 mg	4 mg
Repeatability in fine range	-	-	-
Linearity deviation	6 mg	6 mg	6 mg
Eccentricity deviation (at test load)	6 mg (500 g)	10 mg (1 kg)	10 mg (2 kg)
Sensitivity offset (at nominal load) 1)	15 mg	25 mg	25 mg
Minimum weight (USP, tolerance = $0.10\%$ ) <sup>2)</sup>	8.2 g	8.2 g	8.2 g
Minimum weight (tolerance = 1%)	820 mg	820 mg	820 mg
Settling time	1.2 s	1.2 s	1.2 s
Dimensions & other specifications			
Balance dimensions (W×D×H)	194×390×102 mm	194×390×102 mm	194×390×102 mm
Weighing pan dimensions (W×D)	172×205 mm	172×205 mm	172×205 mm
Usable height of draft shield	-	-	-
Balance weight	7.9 kg	7.9 kg	7.9 kg
Weights for routine testing			
Weights (OIML class)	50 g (F2)/ 1000 g (F2)	100 g (F2)/ 2000 g (F2)	200 g (F2)/ 2000 g (F2)
Weights (ASTM class)	50 g (ASTM 1)/ 1000 g (ASTM 1)	100 g (ASTM 1)/ 2000 g (ASTM 1)	200 g (ASTM 4)/ 2000 g (ASTM 4)

after adjustment with internal weight

128

Technical Data Precision Balances

determined at 5% load, k = 2

	XSR6002S	XSR6002SDR	XSR10002S
Limit values			
Capacity	6.1 kg	6.1 kg	10.1 kg
Nominal load	6 kg	6 kg	10 kg
Readability	10 mg	100 mg	10 mg
Capacity of fine range	-	1200 g	-
Readability in fine range	-	10 mg	-
Repeatability	8 mg	60 mg	8 mg
Repeatability in fine range	-	8 mg	-
Linearity deviation	20 mg	60 mg	20 mg
Eccentricity deviation (at test load)	30 mg (2 kg)	100 mg (2 kg)	40 mg (5 kg)
Sensitivity offset (at nominal load) 1)	60 mg	150 mg	50 mg
Sensitivity temperature drift	0.0003%/°C	0.0003%/°C	0.00025%/°C
Typical values			
Repeatability	4 mg	40 mg	4 mg
Repeatability in fine range	-	5 mg	-
Linearity deviation	6 mg	20 mg	6 mg
Eccentricity deviation (at test load)	10 mg (2 kg)	32 mg (2 kg)	12 mg (5 kg)
Sensitivity offset (at nominal load) 1)	12 mg	30 mg	12 mg
Minimum weight (USP, tolerance = $0.10\%$ ) <sup>2)</sup>	8.2 g	82 g	8.2 g
Minimum weight (tolerance = 1%)	820 mg	8.2 g	820 mg
Settling time	1.2 s	1.2 s	1.5 s
Dimensions & other specifications			
Balance dimensions (W×D×H)	194×390×102 mm	194×390×102 mm	194×390×102 mm
Weighing pan dimensions (W×D)	172×205 mm	172×205 mm	172×205 mm
Usable height of draft shield	-	-	-
Balance weight	7.9 kg	7.9 kg	7.5 kg
Weights for routine testing		·	<u> </u>
Weights (OIML class)	200 g (F2)/ 5000 g (F2)	200 g (F2)/ 5000 g (F2)	500 g (F2)/ 10000 g (F2)
Weights (ASTM class)	200 g (ASTM 4)/ 2000 g (ASTM 4)	200 g (ASTM 4)/ 5000 g (ASTM 4)	500 g (ASTM 4)/ 10000 g (ASTM 4)

after adjustment with internal weight

Precision Balances Technical Data

determined at 5% load, k = 2

# 9.3.1.4 Readability 100 mg

	XSR4001S	XSR6001S
Limit values		
Capacity	4.1 kg	6.1 kg
Nominal load	4 kg	6 kg
Readability	100 mg	100 mg
Capacity of fine range	-	-
Readability in fine range	-	-
Repeatability	80 mg	80 mg
Repeatability in fine range	-	-
Linearity deviation	60 mg	60 mg
Eccentricity deviation (at test load)	200 mg (2 kg)	200 mg (2 kg)
Sensitivity offset (at nominal load) 1)	240 mg	240 mg
Sensitivity temperature drift	0.0015%/°C	0.0015%/°C
Typical values		
Repeatability	40 mg	40 mg
Repeatability in fine range	-	-
Linearity deviation	20 mg	20 mg
Eccentricity deviation (at test load)	60 mg (2 kg)	60 mg (2 kg)
Sensitivity offset (at nominal load) 1)	50 mg	50 mg
Minimum weight (USP, tolerance = $0.10\%$ ) <sup>2)</sup>	82 g	82 g
Minimum weight (tolerance = 1%)	8.2 g	8.2 g
Settling time	0.8 s	0.8 s
Dimensions & other specifications		
Balance dimensions (W×D×H)	194× 390×99 mm	194× 390×99 mm
Weighing pan dimensions (W×D)	194×223 mm	194×223 mm
Usable height of draft shield	-	-
Balance weight	6.3 kg	6.3 kg
Weights for routine testing		
Weights (OIML class)	200 g (F2)/ 2000 g (F2)	200 g (F2)/ 5000 g (F2)
Weights (ASTM class)	200 g (ASTM 4)/ 2000 g (ASTM 4)	200 g (ASTM 4)/ 5000 g (ASTM 4)

after adjustment with internal weight

130

Technical Data Precision Balances

determined at 5% load, k = 2

	XSR8001S	XSR10001S
Limit values		
Capacity	8.1 kg	10.1 kg
Nominal load	8 kg	10 kg
Readability	100 mg	100 mg
Capacity of fine range	-	-
Readability in fine range	-	-
Repeatability	80 mg	80 mg
Repeatability in fine range	-	-
Linearity deviation	100 mg	100 mg
Eccentricity deviation (at test load)	200 mg (5 kg)	200 mg (5 kg)
Sensitivity offset (at nominal load) 1)	600 mg	500 mg
Sensitivity temperature drift	0.0015%/°C	0.0015%/°C
Typical values		
Repeatability	40 mg	40 mg
Repeatability in fine range	-	-
Linearity deviation	30 mg	30 mg
Eccentricity deviation (at test load)	60 mg (5 kg)	60 mg (5 kg)
Sensitivity offset (at nominal load) 1)	120 mg	120 mg
Minimum weight (USP, tolerance = $0.10\%$ ) <sup>2)</sup>	82 g	82 g
Minimum weight (tolerance = 1%)	8.2 g	8.2 g
Settling time	1 s	1 s
Dimensions & other specifications		
Balance dimensions (W×D×H)	194× 390×99 mm	194× 390×99 mm
Weighing pan dimensions (W×D)	194×223 mm	194×223 mm
Usable height of draft shield	-	-
Balance weight	6.3 kg	6.3 kg
Weights for routine testing		
Weights (OIML class)	200 g (F2)/ 5000 g (F2)	500 g (F2)/ 10000 g (F2)
Weights (ASTM class)	200 g (ASTM 4)/ 5000 g (ASTM 4)	500 g (ASTM 4)/ 10000 g (ASTM 4)

after adjustment with internal weight

Precision Balances Technical Data

determined at 5% load, k = 2

# 9.3.2 L platform

# 9.3.2.1 Readability 100 mg

	XSR10001L	XSR16001L
Limit values	'	
Capacity	10.1 kg	16.1 kg
Nominal load	10 kg	16 kg
Readability	100 mg	100 mg
Capacity of fine range	-	-
Readability in fine range	-	-
Repeatability	80 mg	80 mg
Repeatability in fine range	-	-
Linearity deviation	200 mg	200 mg
Eccentricity deviation (at test load)	300 mg (5 kg)	300 mg (5 kg)
Sensitivity offset (at nominal load) 1)	500 mg	800 mg
Sensitivity temperature drift	0.0015%/°C	0.0015%/°C
Typical values		
Repeatability	40 mg	40 mg
Repeatability in fine range	-	-
Linearity deviation	60 mg	60 mg
Eccentricity deviation (at test load)	100 mg (5 kg)	100 mg (5 kg)
Sensitivity offset (at nominal load) 1)	120 mg	120 mg
Minimum weight (USP, tolerance = 0.10%) <sup>2)</sup>	82 g	82 g
Minimum weight (tolerance = 1%)	8.2 g	8.2 g
Settling time	1.5 s	1.5 s
Dimensions & other specifications		
Balance dimensions (W×D×H)	360×412×122 mm	360×412×122 mm
Weighing pan dimensions (W×D)	360×280 mm	360×280 mm
Usable height of draft shield	-	-
Balance weight	10.1 kg	10.1 kg
Weights for routine testing		
Weights (OIML class)	500 g (F2)/ 10000 g (F2)	500 g (F2)/ 10000 g (F2)
Weights (ASTM class)	500 g (ASTM 4)/ 10000 g (ASTM 4)	500 g (ASTM 4)/ 10000 g (ASTM 4)

after adjustment with internal weight

132

Technical Data Precision Balances

determined at 5% load, k = 2

	XSR32001L	XSR32001LDR
Limit values		'
Capacity	32.1 kg	32.1 kg
Nominal load	30 kg	30 kg
Readability	100 mg	1 g
Capacity of fine range	-	6.4 kg
Readability in fine range	-	100 mg
Repeatability	80 mg	600 mg
Repeatability in fine range	-	100 mg
Linearity deviation	300 mg	300 mg
Eccentricity deviation (at test load)	300 mg (10 kg)	1 g (10 kg)
Sensitivity offset (at nominal load) 1)	960 mg	960 mg
Sensitivity temperature drift	0.001%/°C	0.001%/°C
Typical values		
Repeatability	40 mg	400 mg
Repeatability in fine range	-	40 mg
Linearity deviation	100 mg	200 mg
Eccentricity deviation (at test load)	100 mg (10 g)	300 mg (10 kg)
Sensitivity offset (at nominal load) 1)	250 mg	320 mg
Minimum weight (USP, tolerance = $0.10\%$ ) <sup>2)</sup>	82 g	82 g
Minimum weight (tolerance = 1%)	8.2 g	8.2 g
Settling time	1.5 s	1.5 s
Dimensions & other specifications		
Balance dimensions (W×D×H)	360×412×122 mm	360×412×122 mm
Weighing pan dimensions (W×D)	360×280 mm	360×280 mm
Usable height of draft shield	-	-
Balance weight	10.1 kg	10.1 kg
Weights for routine testing		
Weights (OIML class)	1000 g (F2)/ 20000 g (F2)	1000 g (F2)/ 20000 g (F2)
Weights (ASTM class)	1000 g (ASTM 4)/ 20000 g (ASTM 4)	1000 g (ASTM 4)/ 20000 g (ASTM 4)

after adjustment with internal weight

Precision Balances Technical Data

determined at 5% load, k = 2

# 9.3.2.2 Readability 1 g

	XSR16000L	XSR32000L
Limit values	1	'
Capacity	16.1 kg	32.1 kg
Nominal load	16 kg	30 kg
Readability	1 g	1 g
Capacity of fine range	-	-
Readability in fine range	-	-
Repeatability	600 mg	600 mg
Repeatability in fine range	-	-
Linearity deviation	600 mg	600 mg
Eccentricity deviation (at test load)	1 g (5 kg)	1 g (10 kg)
Sensitivity offset (at nominal load) 1)	1.1 g	1.6 g
Sensitivity temperature drift	0.0015%/°C	0.0015%/°C
Typical values		·
Repeatability	400 mg	400 mg
Repeatability in fine range	-	-
Linearity deviation	400 mg	400 mg
Eccentricity deviation (at test load)	300 mg (5 kg)	300 mg (10 kg)
Sensitivity offset (at nominal load) 1)	350 mg	650 mg
Minimum weight (USP, tolerance = $0.10\%$ ) <sup>2)</sup>	820 g	820 g
Minimum weight (tolerance = 1%)	82 g	82 g
Settling time	1.2 s	1.2 s
Dimensions & other specifications		
Balance dimensions (W×D×H)	360×412×122 mm	360×412×122 mm
Weighing pan dimensions (W×D)	360×280 mm	360×280 mm
Usable height of draft shield	-	-
Balance weight	10.1 kg	10.1 kg
Weights for routine testing		
Weights (OIML class)	500 g (F2)/ 10000 g (F2)	1000 g (F2)/ 20000 g (F2)
Weights (ASTM class)	500 g (ASTM 4)/ 10000 g (ASTM 4)	1000 g (ASTM 4)/ 20000 g (ASTM 4)

after adjustment with internal weight

134

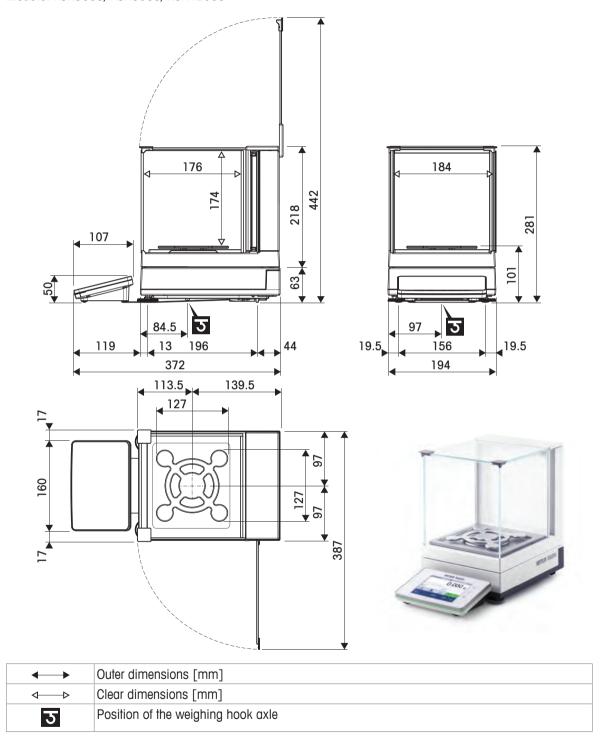
Technical Data Precision Balances

determined at 5% load, k = 2

## 9.4 Dimensions

## 9.4.1 S platform, readability 1 mg, with MagicCube Draft Shield and SmartPan

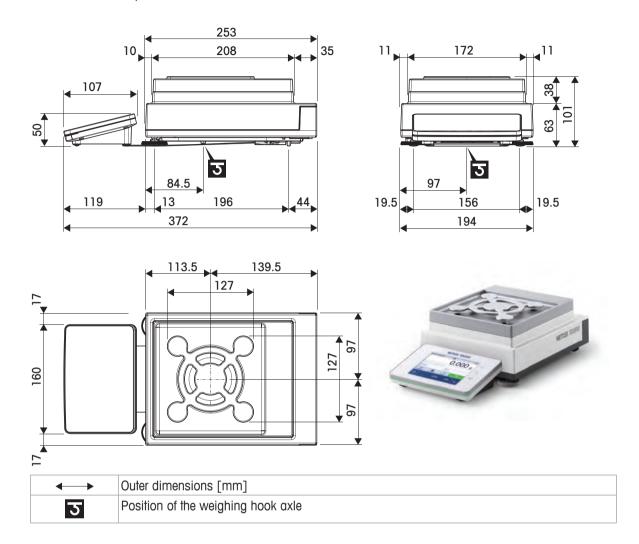
Models: XSR303S, XSR603S, XSR1203S



Precision Balances Technical Data

## 9.4.2 S platform, readability 1 mg, with SmartPan

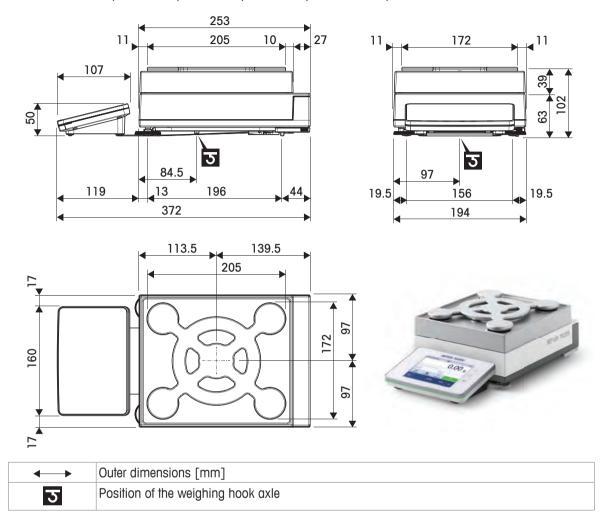
Models: XSR303SN, XSR603SN



Technical Data Precision Balances

## 9.4.3 S platform, readability 10 mg, with SmartPan

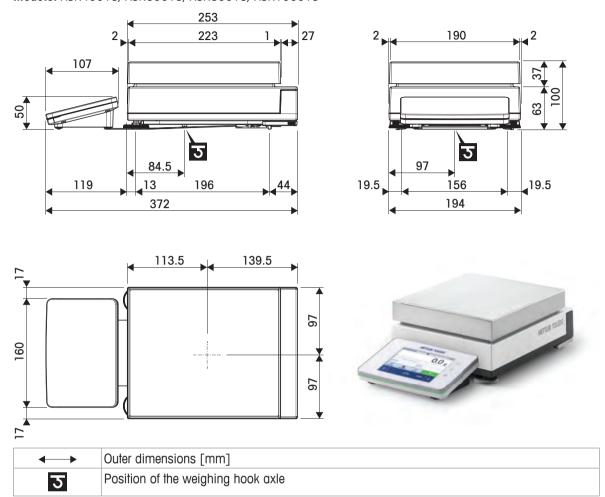
Models: XSR1202S, XSR2002S, XSR4002S, XSR6002S, XSR6002SDR, XSR10002S



Precision Balances Technical Data

# 9.4.4 S platform, readability 100 mg

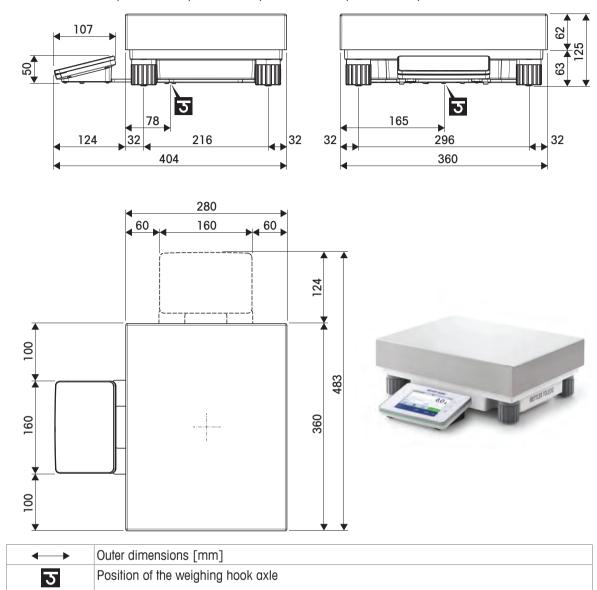
Models: XSR4001S, XSR6001S, XSR8001S, XSR10001S



Technical Data Precision Balances

## 9.4.5 L platform, readability 100 mg / 1 g

Models: XSR10001L, XSR16001L, XSR32001L, XSR32001LDR, XSR16000L, XSR32000L



Precision Balances Technical Data

# 10 Disposal

In conformance with the European Directive 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE) this device may not be disposed of in domestic waste. This also applies to countries outside the EU, per their specific requirements.



Please dispose of this product in accordance with local regulations at the collecting point specified for electrical and electronic equipment. If you have any questions, please contact the responsible authority or the distributor from which you purchased this device. Should this device be passed on to other parties, the content of this regulation must also be related.

Disposal Precision Balances

# 11 Accessories and Spare Parts

# 11.1 Accessories

	Description	Part No.
Density determination	on	
	Density kit	30300933
*	Sinker 10 mL	210260
Ê		
*	Calibrated Sinker 10mL	210672
Ê		
	Calibrated Thermometer	11132685
Printers		
5	P-52RUE dot matrix printer RS232C, USB and Ethernet connections, simple print-outs	30237290
	Paper roll (length: 20 m), set of 5 pcs	00072456
	Paper roll (length: 13 m), self-adhesive, set of 3 pcs	11600388
	Ribbon cartridge, black, set of 2 pcs	00065975
£ 210 p	P-56RUE thermal printer with RS232C, USB and Ethernet connections, simple print-outs, date and time	30094673



0 pos	
Ribbon cartridge, black, set of 2 pcs	00065975
56RUE thermal printer with RS232C, USB and Ethernet nnections, simple print-outs, date and time	30094673
Paper roll, white (length: 27 m), set of 10 pcs	30094723
Paper roll, white, self-adhesive (length: 13 m), set of 10 pcs	30094724



P-58RUE thermal printer with RS232C, USB and Ethernet
connections, simple print-outs, date and time, label printing,
balance applications, e.g., statistics, formulation, totaling, SQC
Paper roll, white (length: 27 m), set of 10 pcs
Paper roll, white, self-adhesive (length: 13 m), set
of 10 pcs
Paper roll, white, self-adhesive labels (550 labels),
set of 6 pcs
30094723
30094725



Citizen CLS631 label printer

11141820

#### **Anti-theft devices**



Anti-theft cable with lock

Dimension of the label 56×18 mm

11600361

#### **Barcode readers**



Corded USB barcode reader

30417466

#### **Draft shields**



Pro draft shield for 0.1 mg and 1 mg models, height: 248 mm

30300926



Pro draft shield glass free (food industry) for 0.1 mg and 1 mg models, height: 248 mm

30409092



Draft shield XP-W12, dimensions (W x D x H): 300 mm  $\times$  450 mm  $\times$  450 mm, for S weighing platform

11134430

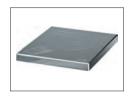
Accessories and Spare Parts Precision Balances



## Weighing pans



Dynamic weighing pan for 100 mg and 10 mg models, with 4 liter bowl and contact mat, S platform



MPS (Magnetic Protection Shield) weighing pan for 0.1 g models 190 × 223 mm, "S" platform

11132625

#### Cables for RS232C interface



USB-RS232 cable (to connect a balance via RS232C to a USB port)

64088427



USB-RS232 cable with null modem (to connect peripherals via RS232C to a balance)

30364315

### **Antistatic kits**



Universal AntiStatic Kit complete (U-shaped), including electrode and power supply

11107767

Optional: Second U-electrode\* for universal AntiStatic Kit \* Power supply for optional, second U-elektrode (11107764) 11107764 11107766



Compact ionizer with stand (USB)

30499859



Additional compact ionizer (USB) for Compact ionizer with stand (30499859)

30496446

### Hands-free accessories



ErgoSens, optical sensor for remote operation (USB connection)

30300915



Foot switch, optional switch for remote operation (USB connection)

30312558

Accessories and Spare Parts **Precision Balances** 

## Filling-process control



LV12 automatic feeder

30374389



LV12 ProDraft Shield door for 0.1 mg and 1 mg models with S weighing platform  $\,$ 

Must be combined with the ProDraft Shield (30300926)

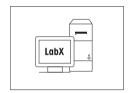
11132711

#### Software



LabX balance express (standalone system)

11153120



LabX balance server (server edition)

11153121

#### Wireless interfaces



Bluetooth RS232C serial adapter ADP-BT-S for wireless connection between:

30086494

- Balance and PC (depending on the balance model)
- · Printer and balance



Bluetooth USB adapter for wireless connection to P-5x printer (additional Bluetooth RS232 serial adapter 30086494 required)

30416089

#### **Various**



Terminal cable, extended, length: 4.5 m

30300920



Transport case for 5 mg, 10 mg and 100 mg models, S platform



Hook for Platform L

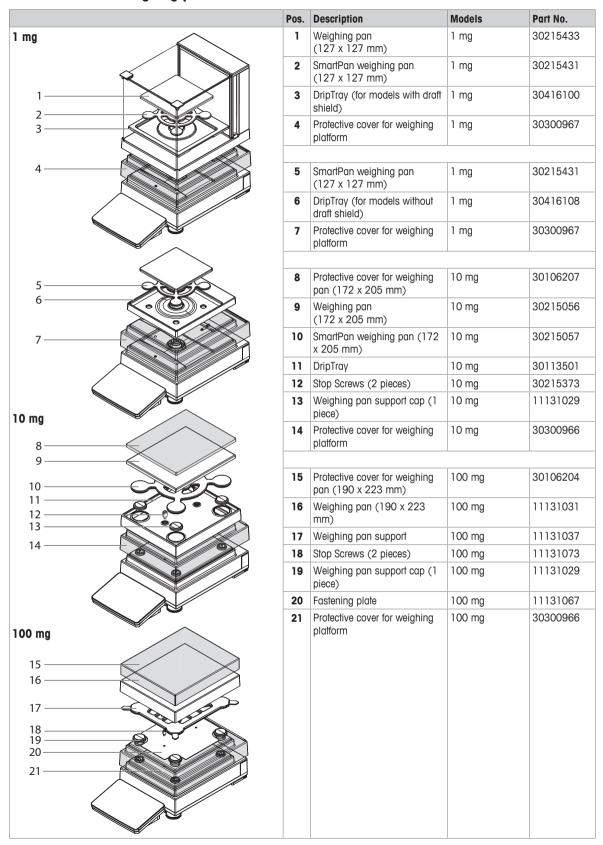
11132565



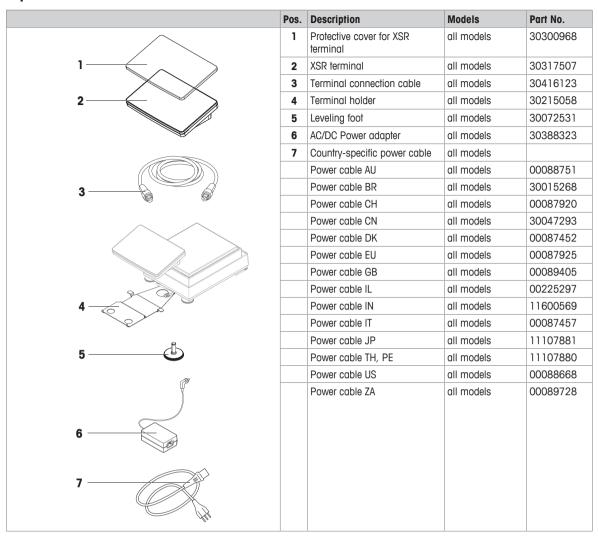
SmartPrep, single-use funnel for quick and easy sample preparation. For flask sizes 10/19, 12/21, 14/23. 50 pcs

## 11.2 Spare parts

## 11.2.1 Balances with S weighing platform

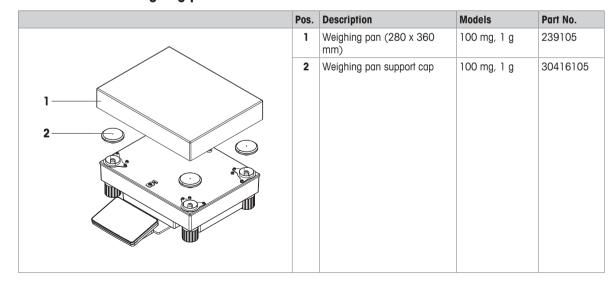


## 11.2.2 S platform miscellaneous



## 11.2.3 Balances with L weighing platform

148



Accessories and Spare Parts Precision Balances

# 11.2.4 L platform miscellaneous

	Pos.	Description	Models	Part No.
	1	Protective cover for XSR terminal	all models	30300968
1——	2	XSR terminal	all models	30317507
	3	Terminal connection cable	all models	30416123
2———	4	Terminal holder	all models	30215058
	5	AC/DC Power adapter	all models	30388323
	6	Country-specific power cable	all models	
		Power cable AU	all models	00088751
		Power cable BR	all models	30015268
3		Power cable CH	all models	00087920
		Power cable CN	all models	30047293
		Power cable DK	all models	00087452
		Power cable EU	all models	00087925
		Power cable GB	all models	00089405
		Power cable IL	all models	00225297
		Power cable IN	all models	11600569
		Power cable IT	all models	00087457
4-3		Power cable JP	all models	11107881
		Power cable TH, PE	all models	11107880
		Power cable US	all models	00088668
		Power cable ZA	all models	00089728
5				
6				

# 11.2.5 MagicCube draft shield

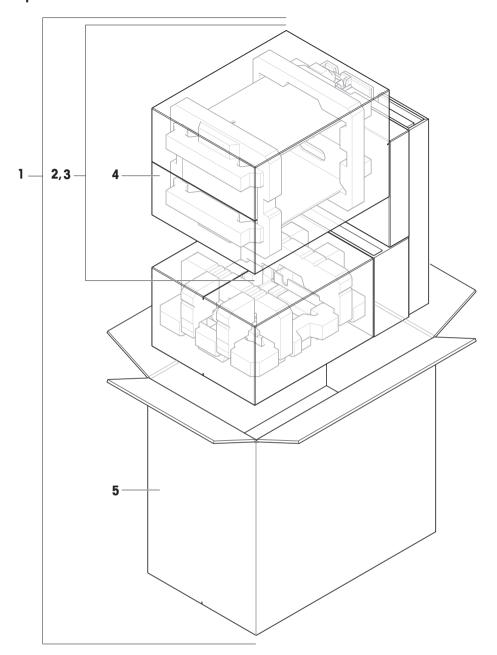
150

	Pos	Description	Part No.
<b>A</b>		MagicCube Draft shield complete	30300928
	1	U-Glass	11133035
	2	Side door	11133037

Accessories and Spare Parts Precision Balances

# 11.2.6 Packaging

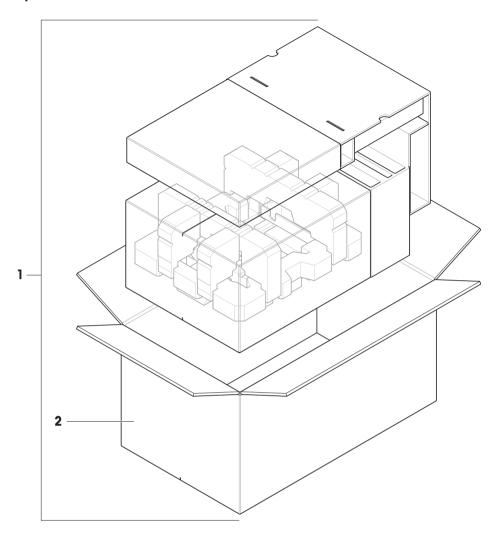
# 11.2.6.1 S platform with draft shield



	Order no.	Designation	Remarks
1	30416124	Packaging complete	_
2	30416157	Packaging complete XPR pro draft shield	_
3	30416158	Packaging XSR Magic cube draft shield	_
4	30416159	Export carton XPR, XSR draft shield	_
5	30416156	Export carton	_

## 11.2.6.2 S platform without draft shield

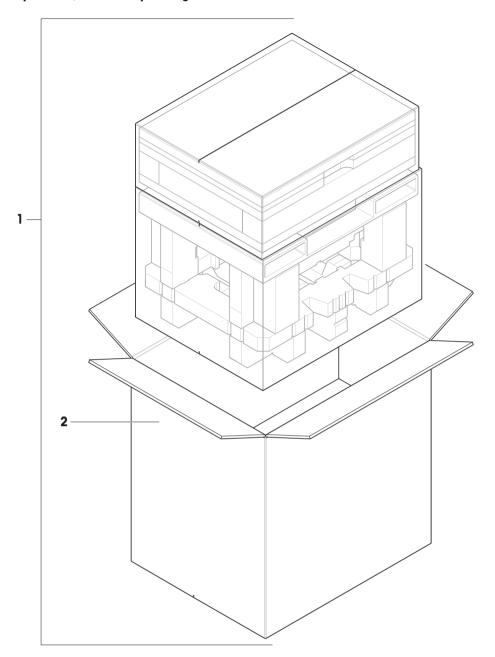
152



	Order no.	Designation	Remarks
1	30416160	Packaging complete	-
2	30416161	Export carton	_

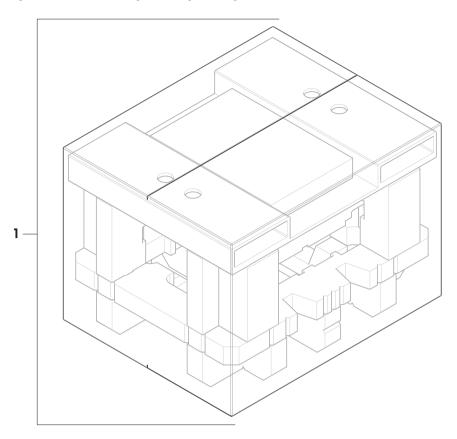
Accessories and Spare Parts Precision Balances

# 11.2.6.3 L platform, readability 10 mg



	Order no.	Designation	Remarks
1	30416125	Packaging complete	_
2	30008482	Export carton	_

# 11.2.6.4 L platform, readability 100 mg and 1g



	Order no.	Designation	Remarks
1	30416162	Packaging complete	_

Accessories and Spare Parts Precision Balances

# Index

A		Conventions and symbols	7
AC/DC adapter	124, 125	Creating test	44
Action when calibration expired		Custom units	70
Actual weight	45	D	
Adjustment		Date	63
External	51, 52	Date format	63
Internal	51	Days before expiration	60
Adjustments	51	Decimal delimiter	62
Allowed number of errors until b	olocking 108, 111, 114	Default gateway	65
Allowed units	61	Default value Result ID	69, 79, 87, 95, 103
As found test	115	Default value Task ID	68, 79, 86, 94, 102
As left test	115	Defining templates	42
Automatic label printout for task	75, 84, 91, 92, 99, 100	Deleting a method	42
Automatic print	107, 110, 112, 115	Density determination	
Automatic result	73, 90, 97	Performing a method	41
Automatic tare after result	73, 82, 90, 97	Density unit	102
Automatic task completion	73, 82	Description Result ID	69, 79, 87, 95, 103
Automatic zero	72, 81, 89, 96	Description Task ID	68, 79, 86, 94, 102
В		Devices	65
	0.4	Display brightness	63
Balance ID	64	Display readability	61, 70
Balance info	58	Disposal	140
Balance information	74, 83, 91, 98, 106	DNS server (primary)	65
Balance menu	18, 57	DNS server (secondary)	65
Balance recalibration reminder	59	E	
Balance settings	58, 66		
Barcode data target	72, 81, 89, 96, 105	Eccentricity test	46
Barcode reader	65	creating	44
Adding	52	settings	107
Barcode settings	75, 76, 84, 92, 99, 100	Editing a method	41
Block balance	108, 111, 114, 116	End of line character	62
Blocking the balance	55	Environment	60
C		Environmental conditions	124
Calculate amount of componen	t 78	Ergosens	65
Calculate concentration per con	nponent 78	Ethernet	64
Calculate target	78	EULA	29
Calibration Certificate	60	Expiry date	78
Certificate	45	External adjustment	51, 52
Certificate date	46	External test weight	45
Certificate ID	45	F	
Cloning a method	42	Factor	70
Comment	68, 77, 86, 94, 101	Field delimiter	62
Concentration unit	78	Field settings	75, 76, 84, 92, 99, 100
Control limit	108, 111, 113, 115	Firmware update on system st	

Precision Balances Index 155

Formula 70 Net indicator  General Weighing 68 Performing a method 35 GWP Approved mode Filter	107, 110, 112 62 62 65 107, 110, 113 109, 112, 114 110 69, 79, 86, 94, 103 68, 79, 86, 94, 102
General Weighing Performing a method GWP Approved mode  H History Home  Net indicator field length Network configuration Nominal weight Notification all (x) hours Number of repetitions Number of Task IDs Number of Task IDs	62 65 107, 110, 113 109, 112, 114 110 69, 79, 86, 94, 103 68, 79, 86, 94, 102
General Weighing Performing a method GWP Approved mode  H History Home  Network configuration Nominal weight Notification all (x) hours Number of repetitions Number of Result IDs Number of Task IDs	65 107, 110, 113 109, 112, 114 110 69, 79, 86, 94, 103 68, 79, 86, 94, 102
General Weighing Performing a method GWP Approved mode  H History Home  Reforming a method S  Retwork configuration Nominal weight Notification all (x) hours Number of repetitions Number of Result IDs Number of Task IDs  O	107, 110, 113 109, 112, 114 110 69, 79, 86, 94, 103 68, 79, 86, 94, 102
Performing a method  GWP Approved mode  H  History  Home  Nominal weight  Notification all (x) hours  Number of repetitions  Number of Result IDs  Number of Task IDs  O	109, 112, 114 110 69, 79, 86, 94, 103 68, 79, 86, 94, 102
GWP Approved mode  H  History  Home  S9  Notification dif (x) hours  Number of repetitions  Number of Result IDs  Number of Task IDs  O	110 69, 79, 86, 94, 103 68, 79, 86, 94, 102
H Number of Result IDs History 57 Number of Task IDs Home 16 0	69, 79, 86, 94, 103 68, 79, 86, 94, 102
History 57 Number of Task IDs Home 16 <b>0</b>	68, 79, 86, 94, 102
Home 16 <b>0</b>	
•	109, 112, 115
Host name	109, 112, 115
Occurrence of day	100, 112, 110
Output mode	61
	01
Indicator 60 P Internal adjustment 51	
Introduction 7 Packing the balance	31
IP address Performing a method	
Density determination	41
K General weighing	35
Keyboard Layout 63 Piece counting	38
L Simple formulation	37
Label printer 65 Pariod	40
reliou	78
Laby consists	38, 85
Language C2	38
Level in the start	109, 111, 114
r Ower suppry	124
Levelle of the helicines	109, 112, 114, 115
Tielix Kesuli ID	69, 79, 87, 95, 103
Landing Co.	68, 79, 86, 94, 102
Lock method 68, 77, 86, 94, 101 Printer	73, 82, 89, 97
FILLIGI	52
MAC address Printers	65
MAC dudless 00	78
Melliou fluffle 68, 77, 80, 94, 101, 102  Protection and standards	124
Meinous 19 Protocol	19
Cioning 42	13
Deleting 42 R	
Editing 41 Reference	87
Methods list 34 Reference average weight	87
Minimum tare weight 110, 113 Reference flask volume	78
MT-SICS service 66 Reference weight (100%)	78
N Repeatability test	47
Name creating	44
Method 68, 77, 86, 94, 101 Result calculation	107, 110, 113
Result ID	69, 79, 87, 95, 103

156 Index Precision Balances

\$		Tare name	110, 113
Safety information		Target	61
Signal words	11	Target weight	69, 70, 80, 87, 95
Warning symbols	11	Task ID	68, 79, 86, 94, 102
Sample ID	69	Technical data	124
Schedule	116	Template	
Selecting the location	22	defining ad-hoc	43
Sensitivity test	48	defining in Method	43
creating	44	Templates	42
Service date reminder	60	Test	19
Settings	58, 66	creating	44
Eccentricity test	107	Eccentricity	46
System	58	Repeatability	47
Show preparation instructions	107, 110, 112	Sensitivity	48
Sign	62	Test activated	107, 110, 112
Sign position	62	Test type	107, 110, 112
Signal words	11	Test weight	45
Simple Formulation	36	Test weight ID	45
Performing a method	37	Test weight name	45
Software version	7	Test weight recalibration reminde	r 60
Sound	1	Tests	43
on error	63	Time	63
on info	63	Time format	63
	63	Time zone	63
on key press	63	Titration	
on warning Sound volume	63	Performing a method	40
	64	Tolerance (max)	69, 70, 80, 87, 95
Standby mode		Tolerance (min)	69, 70, 80, 87, 95
Standby mode	16, 29	Tolerance profile	71, 81, 87, 95, 104
Start after leveling	116	Tolerance profiles	59
Start after temperature change	116	Transport over long distances	31
Start time	109, 111, 114, 116	Type plate	16
Statistical evaluation	71, 88, 105		
Status light	64	U	
Status light brightness	64	Unblocking the balance	56
Storing the balance	31	Unit	62, 69, 70, 80, 95
Strategy	115	Unit field length	62
Strip printer	65, 74, 82, 90, 98, 106	Unpacking	22
Subnet mask	65	Updates/sec.	62
Switch on	29	USB device	
Switching off the balance	29	Adding	52
Symbols and conventions	7	Used template	75, 76, 84, 92, 99, 100
System settings	58	V	
T		Value release	60
Tare	16	W	
Tare mode	72, 82, 89, 96	Wait time	64
			<b>5</b> 4

Precision Balances Index 157

Warning limit	108, 111, 113, 115
Warning symbols	11
Weighing mode	60
Weight	
Test weight	45
Weight capture delay	71, 88, 96, 104
Weight capture mode	71, 88, 95, 104
Weight class	45, 108, 110, 113
Weight field length	61
Weight set ID	46
Weight trigger	73, 90, 97
Weight value character output over	r USB 74, 82, 90, 98
Weight value output over USB	59
Work screen	
Balance menu	18
Methods	19
Protocol	19
X	
x hours before test	109, 112, 114
Z	
Zero	16
Zero drift compensation	61

158 Index Precision Balances



Good Weighing Practice<sup>™</sup>

GWP® is the global weighing standard, ensuring consistent accuracy of weighing processes, applicable to all equipment from any manufacturer It helps to:

- Choose the appropriate balance or scale
- Calibrate and operate your weighing equipment with security
- Comply with quality and compliance standards in laboratory and manufacturing

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