

ICS241 Counting Scales



METTLER TOLEDO



ServiceXXL

Congratulations on choosing the quality and precision of METTLER TOLEDO. Proper use according to these instructions and regular calibration and maintenance by factory-trained service team ensure dependable and accurate operation to protect your investment.

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We invite you to register your product at
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So we can contact you about enhancements, updates and important notifications concerning your METTLER TOLEDO product.

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1. General Information

1.1 Safety Instructions



In order to make your counting scale work in best condition, please read this user instructions carefully before using it!

- ▲ The scale must be powered off and unplugged during maintenance and clean, or it will cause electric shock or damage to counting scale.
- ▲ Flush the weighing platform with water is forbidden. Wet cloth wrung can be used to wipe weighing platform or scale pan.
- ▲ Chemicals such as solvent can't be touched, in case it corrodes the surface of scale and damages internal devices.
- ▲ The METTER TOLEDO's counting scale is a high precision instrument. Please maintain carefully. Do not impact the scale with heavy weight. Make the scale work in best condition.
- ▲ Only authorized personnel may open the device.



- ▲ Devices with built-in storage battery
- ▲ Ensure that the power socket outlet for the device is earthed and easily accessible, so that it can be de-energized rapidly in emergencies.
- ▲ Ensure that the supply voltage at the installation site lies within the range of 100 V to 240 V.
- ▲ Check the power cable regularly for damage. If it is damaged, disconnect the device immediately from the power supply.

1.2 Power supply connection



CAUTION

Risk of electric shock!

- ▲ Before connecting the power supply, check whether the voltage value printed on the rating plate corresponds to your local system voltage.
- ▲ Do not under any circumstances connect the device if the voltage value on the rating plate deviates from the local system voltage.
- ▲ Make sure the weighing platform has reached room temperature before switching on the power supply.

➔ Plug the power plug into the power socket.

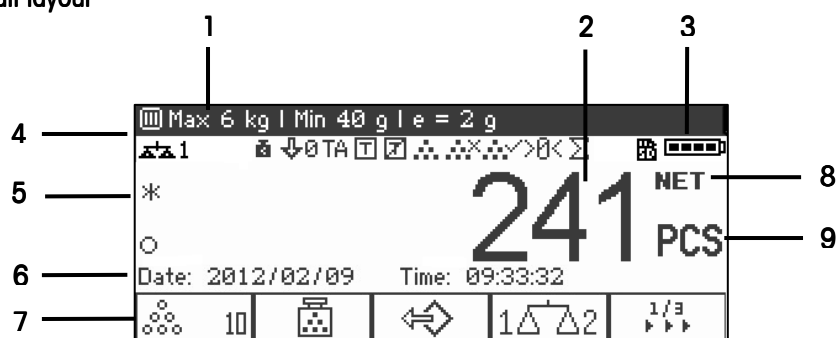
After it has been connected, the device runs a self-test. The device is ready to operate when zero appears on the display.

1.3 Introduction

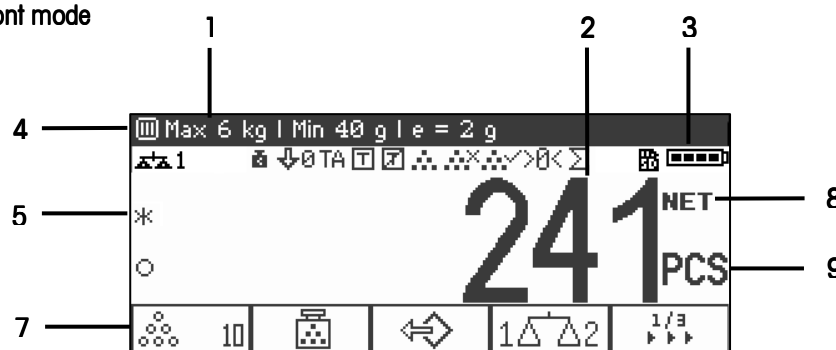
1.3.1 Display

Three different display layouts are selectable in the terminal menu.

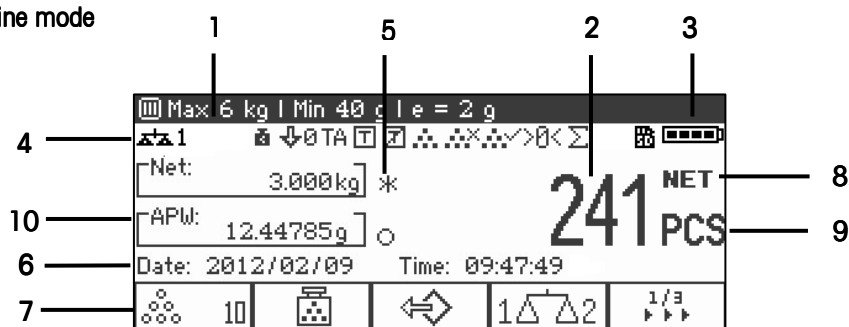
Default layout



Big font mode



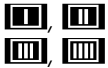
3-line mode



1. Metrological data -- for details see below
2. Gross/Net display
3. Battery symbol
4. Symbol and info line – for details see below
5. Weight value with star, minus sign and stability monitor – for details see below
6. Auxiliary data – can be defined in the menu
7. Customization soft keys
8. Net/Gross
9. Unit
10. Net/Average piece weight (Piece counting mode), Gross/Tare (Straight weighing mode)

Metrological data line*

In the metrological data line the following information is displayed:

Symbol	Information	Note
	Accuracy classes	Display if the scale is approved according to the applicable Weights and Measures guidelines
Max , cap	Maximum capacity	
Min	Minimum capacity	Display if the scale is approved according to the Weights and Measures guidelines
e =	Approved resolution	Displayed only if the scale is approved according to the Weights and Measures guidelines
d =	Display resolution	Displayed only if the scale is not approved or if d is different from e
Approved scale	Approved weighing device	Metrology display disabled, Weights and Measures data must be indicated on a label near the site of weight display.

*It's only for China W&M approval.












Weight display

The weight value can be marked with the following symbols:

Symbol	Information	Note
*	Calculated weight value	E.g. Weight hold status or sample weight is below the minimum sample weight
-	Sign	For negative weight values
○	Stability monitor	For unstable weight values

Symbols and info line

In the symbols and info line the following information can be displayed:

Symbol	Information	Note
	The Current scale number	Only available for 2 nd scale version.
	Weight below minimum weight	MinWeigh must be activated in the menu.
	Automatic taring	Auto Tare must be activated in the menu.
	Automatic clearing of the tare weight	Auto Clear Tare must be activated in the menu.
	Center of zero indication	Availability depending on local Weights and Measures regulations.
	Check weighing to zero	To zero must be assigned to a soft key in the menu.
	Take-away mode	Take away must be assigned to a soft key in the menu.
	Auto sampling	Auto sampling must be activated in the menu.
	Auto clear APW (average piece weight)	Auto clear APW must be activated in the menu.
	APW (average piece weight) optimization	APW optimization must be activated in the menu.
	Auto totalize	Auto totalize must be activated in the menu.

Device information

ICS241 offers the possibility to configure the following device information to identify the device according to your company's needs:

- Device identifier
- Device location

In addition the device name provides the complete type information already entered in the factory, e.g., ICS241-03001.

This device information can be used as follows:

- displayed in the auxiliary line of the display.
 - displayed via **i**.
 - printed/transferred together with the weight value.
- ➔ Please ask the METTLER TOLEDO service technician to configure device identifier and Device location according to your specific requirements.

1.3.2 Function keys








Key	Name	Function in the operating mode	Function in the menu
	Power	<ul style="list-style-type: none"> ● Power on/off ● Cancel editing 	<ul style="list-style-type: none"> ● Cancel editing ● Exit menu
	Clear	<ul style="list-style-type: none"> ● Clear tare ● Leave info page 	<ul style="list-style-type: none"> ● Clear value, clear numbers or characters
	Switch	<ul style="list-style-type: none"> ● Switch weight unit 	<ul style="list-style-type: none"> ● Switch input method in edit status
	Zero	<ul style="list-style-type: none"> ● Set scale to zero, clear tare 	
	Tare	<ul style="list-style-type: none"> ● Set tare, clear tare 	
	Info	<ul style="list-style-type: none"> ● Activate info screen ● Proceed to next info line / info page ● Freeze and release startup screen 	
	Transfer	<ul style="list-style-type: none"> ● Transfer data to a printer or computer ● Long key press: Call up menu 	<ul style="list-style-type: none"> ● Enter menu item (scroll right) ● Confirm entry / selection
	Alpha-number	<ul style="list-style-type: none"> ● Value presetting, e.g. tare, piece weight or reference n 	<ul style="list-style-type: none"> ● Edit numbers, change menu setting ● Edit characters, change article info.

1.3.3 Soft keys






To meet your specific application requirements ICS241 offers 12 soft keys which can be configured in the terminal menu. The soft keys are divided into three lines (pages).

Default setting





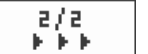
Page 1 (single scale version)

				
Reference 10	Average piece weight	Recall	Display	

Page 2 (dual-scale version)

				
Reference 10	Average piece weight	Recall	Switch scales	

Page 2

				
Store	Target	ID1	ID2	

Page 3

				
Log files	Totalize			

Operating soft keys

→ Press the key below the desired function.

Changing soft key line

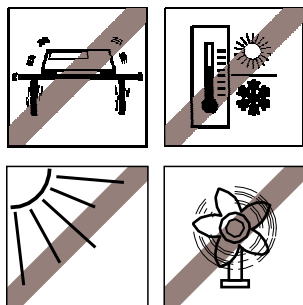
→ Press soft key ►►► to switch from page1 via page2 to page3 and vice versa.

Possible soft key settings

Symbol	Menu setting	Function
	Target	Set checkweighing/counting parameters
	Recall	Recall article parameters from the database
	Store	Store article parameters in the database
	Display	Switch over display mode
TA	Take away	Activate / deactivate Take-away mode
	To zero	Display checkweighing/counting to zero
ID1	ID1	Enter identification 1
ID2	ID2	Enter identification 2
	Reference n	Determine the average piece weight
	Average PW	Enter the average piece weight
	APW opt.	Average piece weight optimization.
	Totalizing	Totalize application
	Log files	Check weighing data logs
	Switch scale	Switch between two scales (only available for dual-scale version)

1.4 Commissioning

1.4.1 Selecting the weighing platform location

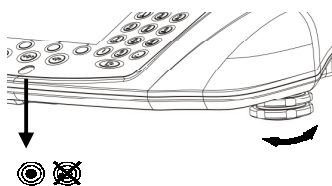


The correct location is crucial for the accuracy of the weighing results.

- ➔ Select a stable, vibration-free and a horizontal location for the weighing platform.
- ➔ Observe the following environmental conditions:
 - No direct sunlight
 - No strong drafts
 - No excessive temperature fluctuations

1.4.2 Levelling the weighing platform

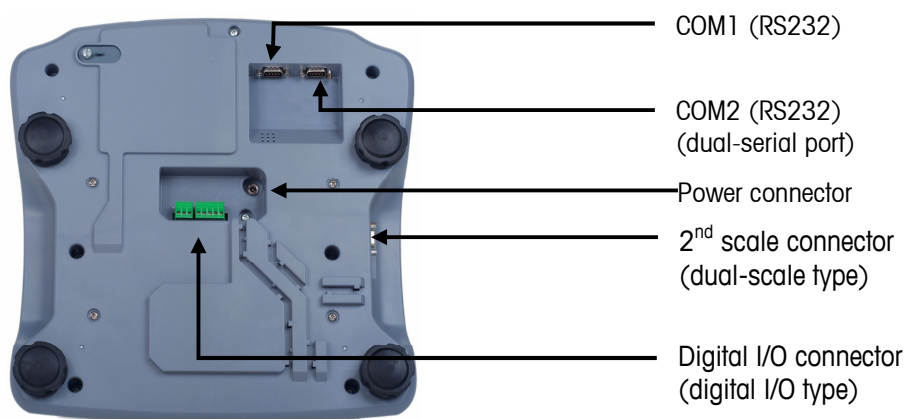
Only weighing platforms that have been levelled precisely horizontally provide accurate weighing results. Weights and Measures approved weighing platforms have a spirit level to simplify levelling.



Leveling the weighing platform as the following procedure shows:


1. Turn the adjustable feet of the weighing platform until the bulb level's air bubble is inside the inner circle (as the picture shows).
2. Tighten the lock nuts of the adjustable feet.

1.4.3 Interface schematic diagram




2. Basic operation

2.1 Switching on and off

- Power on**
- Press .
 - For a few seconds, the device shows a start-up screen with device name, software version, serial number of the scale and the Geo value.



You can freeze the start-up screen by pressing **i**. Press **i** again can unfreeze the screen and come back to normal start-up

- Power off**
- Press .
 - Before the display shuts down, **-OFF-** appears briefly.

2.2 Zeroing / Zero point correction


- Manual**
1. Unload scale.
 2. Press **→0←**.
Zero appears in the display.

Automatic In the case of non-approved scales, the automatic zero point correction can be deactivated in the menu or the zero range can be changed. Approved scales are set fixed to 0.5 d. As standard, the zero point of the scale is automatically corrected when the scale is unloaded.



- The zero function is only available within a limited weighing range.
- After zeroing the scale, the whole weighing range is still available.
- Zeroing will always delete the tare weight.

2.3 Simple weighing

Place weighing the sample on the scale.
Wait until the stability monitor  disappears.
Read the weighing result.

2.4 Weighing with tare


2.4.1 Taring

→ Place the empty container on the scale and press →**T**←.
The zero display and the symbol **NET** appear.
The tare weight remains stored until it is cleared.

2.4.2 Clearing the tare

→ Press **C**.
The symbol **NET** appears, the gross weight appears in the display.




If the symbol  is on, i.e., the automatic clearing of the tare weight function is activated in the menu under Scale -> Tare, the tare weight is automatically cleared as soon as the scale is unloaded.

2.4.3 Automatic clearing of the tare

The tare weight is automatically cleared when the scale is unloaded.


Prerequisite

- ✓ The symbol  lights in the display, i.e. the tare function automatic clearing of the tare weight is activated in the menu under Scale -> Tare.

2.4.4 Automatic taring

If you place a weight on an empty scale, the scale tares automatically and the symbol **NET** is displayed.

Prerequisite

- ✓ The symbol  lights in the display, i.e. the tare function automatic clearing of the tare weight is activated in the menu under Scale -> Tare.



The weight can be tared automatically when packaging material is heavier than 9d.

2.4.5 Chain tare

With this function it is possible to tare several times if, e.g. cardboard is placed between individual layers in a container. It's convenient using this function to do several chain tare.

Prerequisite

- ✓ The tare function Chain tare is activated in the menu under Scale → Tare.

Place the first container or packaging material on the scale and press →**T**←.
The packaging weight is automatically saved as the tare weight, the zero display and the symbol **NET** appear.
Weigh the weighing sample and read/print out the result.

Place the second container or packaging material on the scale and press **→T←** again. The total weight on the scale is saved as the new tare weight. The zero display appears. Weigh the weighing sample in the second container and read/print the result. Repeat steps 3 and 4 for the other containers.

2.4.6 Tare preset

If you know the weight of your containers, you can scan barcodes or input SICS command to enter the tare weight. So you do not have to tare the empty container. See section 4.5.2 RS232 menu discription.

Prerequisite

- ✓ Please set the destination of 'External input mode' as 'preset tare'.

Enter the known tare weight by scanning bar codes or input SICS command. The weight display shows the negative tare weight and the symbol **NET** appears. Place the full container on the weighing platform. The net weight is displayed.



The entered tare weight is valid until a new tare weight is entered or the tare weight is cleared.

2.5 Working with identifications

Weighing series can be assigned 2 identification numbers ID1 and ID2 with up to 40 characters that are also printed out in the protocols. If for example a customer number and an article number are assigned, it can be clearly seen in the protocol which article was weighed for which customer.

You can enter ID via bar code scanning (only one of the ID can be entered).

- ✓ Set ID1 or ID2 as destination of 'External input mode'.
- ✓ ID1 or ID2 can be displayed in the auxiliary line.

You can enter ID via SICS command(These two IDs can be entered separately) .

- ✓ ID1 or ID2 can be displayed in the auxiliary line.

2.6 Printing results

If a printer or computer is connected, weighing results and other information can be printed out or transferred to a computer.

→ Press **↵**.

The defined data is printed out or transferred to the computer.



The printout content can be defined in the **templates** menu.

2.7 Verification test*

The weighing instrument is verified if

- the accuracy class is displayed in the metrological line,
- the securing seal is not tampered with,
- the validity is not expired.

The weighing instrument is also verified if:

- 'Approved scale' is displayed in the metrological line,
- Labels with the metrological data are placed near the weight display,
- The securing seal is not tampered with,
- The validity is not expired.



The period of validity is country-specific. It is in the responsibility of the owner to renew verification in due time.

Combinations of a weighing terminal and an analog weighing platform use a Geo Code to compensate for gravitational influence.

The manufacturer of the weighing instrument uses a defined Geo Code value for verification.

➔ Please check if the Geo Code in the instrument corresponds with the Geo Code value defined for your location.

The Geo Code value is displayed when you switch on the instrument.

The Geo Code for your location is shown in the appendix.

➔ Call the METTLER TOLEDO service technician if the Geo Code values do not match.

*It's only for China W&M approval.

2.8 Display Information

Up to 20 different items for display can be configured in the menu for the info key.

Depending on the configuration in the menu Terminal → Device → Keyboard → Info key, the following data can be assigned in a free order, e.g.:

- Date & Time
- Weight values
- Identifications
- Device information

Press **i**.

The (first) info screen is displayed.

Press **i** again.

With one info screen only, the weight display appears.

With several info screens, the next info screen is displayed.

With several info screens press **C** to exit the info screens.




An info screen is displayed until **i** is pressed again or **C** is pressed.



3. Application

3.1 Piece counting

3.1.1 Piece counting with a fixed number of reference pieces

Prerequisite

✓ The corresponding soft key  n is activated in the terminal menu.

1. Load the reference parts
2. If it is the default number of reference parts, press  n.
3. Otherwise enter the number of reference parts and press  n.
n: specify reference piece number.



4. Display reference pieces: the value of n.



- The average piece weight remains stored until a new average piece weight is determined.
- The auxiliary line and the info page can be configured to show the average piece weight.

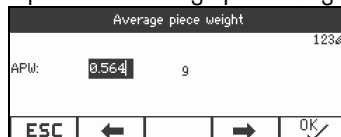
3.1.2 Piece counting with a known piece weight


Prerequisite

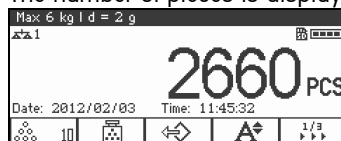
✓ The corresponding soft key  is activated in the terminal menu.

1. Press .

Input of the average piece weight (APW) is requested.



2. Enter the average piece weight and confirm with .
3. Load the parts to be counted.
The number of pieces is displayed.





- You can enter the average piece weight via barcode if the external input destination is configured to "Average piece weight".
- The average piece weight remains stored until a new average piece weight is determined.

3.1.3 Exit piece counting

→ Press **C**.

'Clear' is displayed on the screen.

Average piece weight is cleared, and straight weighing value is displayed.

The device operates in straight weighing mode.



3.2 Reference optimization


Reference optimization serves to re-calculate new average piece weight using a greater number of reference pieces.

Reference optimization can be performed either manually or automatically

3.2.1 Manual Reference Optimization

Prerequisite

- ✓ For manual ref. opt, activate soft key  ✓ in the menu 'Terminal->Device->Keyboard->Soft keys'.
- ✓ Soft key  ✓ is only available in the counting mode, and the average piece weight is obtained via sample counting, not fixed input.


1. Piece counting with a fixed number of reference pieces. (Repeat step 1-3 of 3.1.1).
2. Add several reference pieces.
Display the total number of two counting times.
3. Press  ✓,
The new average piece weight is obtained.



- The second added number of reference pieces must be less than the first number of reference pieces.
- If there is a great difference between the result of second average piece weight and first average piece weight, 'Optimization' function can't be executed.

3.2.2 Automatic Reference Optimization

Prerequisite

- ✓ Be activated in the menu 'Application->Auto totalize->Activate'.
  will appear in the symbols line.
 - ✓ Auto totalize is only available in the counting mode, and the average piece weight is obtained via sample counting, not fixed input.
1. Piece counting with a fixed number of reference pieces. (Repeat step 1-3 of 3.1.1).
 Add several reference pieces.
 2. Display the total number of two counting times, the function of optimization is enabled after the number levels off.
 The new average piece weight is obtained.
- The second added number of reference pieces must be less than the first number of reference pieces.
 - If there is a great difference between the result of second average piece weight and first average piece weight, 'Optimization' function can't be executed.



3.3 Minimum sample weight

In order to ensure obtaining more precise average piece weight during reference number counting, minimum resolution can be specified to set minimum sample weight.

Prerequisite

- ✓ Specify the minimum percentage accuracy of the reference weight in the menu 'Application->Count-> Min. sample weight'.
1. The scale calculates the average piece weight as discussed in step 1-2 of 3.1.1.
 2. If it has determined that the percentage accuracy for the reference weight is below the value set as Minimum sample weight. It will calculate the number of pieces that you have to place on the scale to reach the desired percentage accuracy.



3. After placing the specific number of pieces on the scale, the average piece weight will be optimized.



- It is possible to override the minimum sample weight checking by pressing the **C** key when you are prompted to add pieces on the scale. This will enable you to use the calculated piece weight, but note that a "*" appears on the display to indicate that the sample weight is below the desired percentage accuracy.

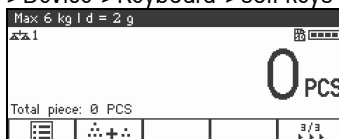


3.4 Totalize

3.4.1 Manual totalizing

Prerequisite

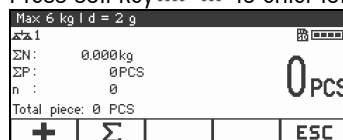
- ✓ For manual totalization, soft key Σ + Δ must be activated in the menu 'Terminal->Device->Keyboard->soft keys'.



- ✓ If you want to display the totalized result on the screen, please specify 'Total net' in Auxiliary line(Terminal->Device->Display->Auxiliary line) and/or accumulate number 'n' in Info key (Terminal->Device->Keyboard->Info key).

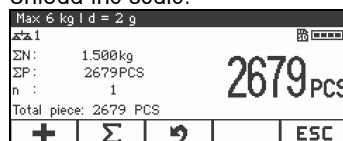
Totalizing

1. Press soft key Σ + Δ to enter totalization interface in weighing or counting mode.



2. Weigh the first batch and press the soft key+, the total net and the number of items are displayed.

Unload the scale.




3. Load the next batch and press the soft key + again, the total net and the number of items have increased.
4. Unload the scale.
Repeat Step 3 and 4 for further items.
If you need to cancel the former step, press soft key \curvearrowright , but this action only cancels the latest operation.
5. After totalization is completed, press soft key Σ . Safe instruction appears.
6. Press soft key YES to clear the totalized result.
– or –
Press soft key NO to continue totalizing.




Piece counting results and Checkweighing/counting results can be totalized the same way.

3.4.2 Automatic totalizing

Prerequisite

- ✓ Activate the function in the menu "Application->Auto totalize".
- ✓ Symbol Σ appears in the symbols line.
- ✓ Activate 'Good print' for Under/Over Checkweighing.
– or –
- ✓ Activate 'Auto print' for other weighing application.
- ✓ Enter totalization interface by pressing soft key , clear the totalized result by pressing soft key Σ .
- ✓ If you want to display the totalized result on the screen, please specify 'Total net' in Auxiliary line(Terminal->Device->Display->Auxiliary line) and/or accumulate number 'n' in Info key (Terminal->Device->Keyboard->Info key).

Automatic totalize

1. Load the first batch, if auto print works, automatic totalizing will be executed and total net & pieces number will be updated.
If Auxiliary line or info key is set, total net and pieces number will be displayed in that area.
 2. Unload the scale.
Load the next batch, total net and pieces number will be increased.
 3. Repeat Step 1.
 4. Unload the scale.
Repeat Step 3 and 4 for further items.
If you need to cancel the former step, press soft key , but this action only cancels the latest operation.
 5. After totalization is completed, press soft key Σ . Safe instruction appears.
 6. Press soft key 'Yes' to clear the totalized result.
- or -
Press soft key NO to continue totalizing.



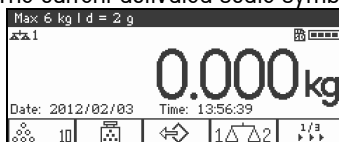
Piece counting results and checkweighing/counting results can be totalized the same way.

3.5 Switch scale

Prerequisite

- ✓ This function is only available in dual- scale version.
- ✓ The 2nd scale is activated in the menu 'Scale ->Scale 2->activate'.



- Soft key $\Delta^+ \Delta$ will automatically appear in the 4th position of soft keys.
- Press soft key $\Delta^+ \Delta$, it switches over from scale 1 to scale 2 or vice versa.
- The current activated scale symbol appears on the top of screen symbols and info line.



- Info line symbol will display the current scale number $\Delta^+ \Delta$ 1.
 '1' indicates the current display scale is ICS241 internal scale.
 '2' indicates the current display scale is ICS241 second scale.
- The position '1' & '2' of soft key $\Delta^+ \Delta$ can help recognize the current scale in use.
 '1' on the left of $\Delta^+ \Delta$ indicates the current display scale is ICS241 internal scale.
 '2' on the left of $\Delta^+ \Delta$ indicates the current display scale is ICS241 second scale.

3.6 Log files


Prerequisite

- ✓ Ensure SD card is inserted, and  is displayed in symbols and info line. That indicates SD card is properly identified. (SD card: secure digital memory card, a kind of small card inserted into the scale for data storage)
- ✓ If you need to check log files, activate soft key  (log files) in the menu 'terminal->device->keyboard->Soft keys'.





- ✓ If you need to save weighing logs, activate it in the menu 'Application->Log files->Activate'.
- ✓ The default former 6 lines as follows, 'Date', 'Net', 'Tare', 'Gross', 'Scale No.'.
- ✓ If you have other requirements, specify 'Item 7-Item 10' in the menu 'Application->Log files'.

Viewing log files



1. In the status of weighing, counting or checkweighing, press soft key  to enter the interface of viewing logs. The last weighing record appears.

000 025	Date:	2012/02/03 14:03:45
000 026	Net:	1.500 kg
000 027	Tare:	1.500 kg
000 028	Gross:	3.000 kg
000 029	Scale No.:	1

2. Press soft key  or numeric keys to see more other records.
3. When contents are assigned in Item 7- 10, more detailed results can be viewed by pressing  to turn over the page.

000 025	APL:	149.9964 g
000 026	Quantity:	10
000 027		
000 028		
000 029		

Printing weighing info log files.

1. When weighing(transaction) records are displayed, press the flip key , the second page of soft key appears, press the print key .

000 025	Date:	2012/02/03 14:03:45
000 026	Net:	1.500 kg
000 027	Tare:	1.500 kg
000 028	Gross:	3.000 kg
000 029	Scale No.:	1

Following options are offered in the screen:

- Print selected record
- Print whole memory
- Print today's records
- Print records by number
- Print records by date

Transaction info	
Print selected record	Print records by number
Print whole memory	Print records by date
Print today's records	

- Press the cursor key \uparrow/\downarrow to choose the required printing mode, then press \rightarrow or \leftarrow to confirm.
- If print records by number or print records by date is chosen, you need to enter start number and end number, or start date and end date. Then press \rightarrow , all selected weighing (transaction) info records will be printed.

Transaction info	
Start number:	123
End number:	29
ESC	←
→	OK ✓

Edit print range in 'print records by number' mode.

Searching weighing info records

- When weighing (transaction) records are displayed, press soft key 🔍 .
- Press soft key 🔍 to select search criteria: 'search by date' or 'search by rec. No.', then press \rightarrow to confirm.
- Enter weighing info record number or date, press \rightarrow to confirm.

All needed weighing info appears.

Delete weighing info log files.

The action is operated in the menu 'Application->log files->weighing info log'.

Application - Log files	
Item 8	Start?
Item 9	
Item 10	
Delete all	
→	↑
↓	←



3.7 Checkweighing/counting

The device offers checkweighing/counting functions. The respective settings in the menu are described in the application menu section.

Prerequisite

- ✓ The soft keys for checkweighing/counting are activated in the terminal menu section.

3.7.1 Specifying target values

Different entries are required at the beginning of checkweighing or checkcounting, depending on the tolerance type setting.

Tolerance type "Absolute"

A low and a high weight value must be entered. These weights and all weights within this range are treated as being within tolerance.

Tolerance type "Relative"

Target weight (Target) as well as lower tolerance (Tol -) and upper tolerance (Tol +) have to be specified. The tolerances are displayed as relative deviations from the target weight.

Tolerance type "Percent"

Target weight (Target) as well as lower tolerance (Tol -) and upper tolerance (Tol +) have to be specified in percent. At checkweighing the weight value is represented as a percentage of the target weight. The target weight 100 % is striven for, or 0 % at over/under checkweighing to zero.



3.7.2 Weighing in target values

The following section describes the course of the factory setting for the checkweighing/counting application.

1. Press .

The current checkweighing parameters are displayed.

Target definition			
Tol.type:	Absolute		123.0
Low:	1.500	kg	
High:	0.000	kg	
ESC			OK ✓

2. Use soft key  to change the tolerance type and soft key  to proceed to the first low target.

With a tolerance type selected in the menu, this step does not appear.

3. Type in requested weight and press soft key .

The next parameter is highlighted.

Target definition			
Tol.type:	Absolute		123.0
Low:	1.500	kg	
High:	0.000	kg	
ESC			OK ✓

4. Repeat step 3 until "New target set!" is displayed.

The checkweighing display appears, the scale is ready for checkweighing.

- If tolerance default values have been set in the menu, only the target has to be specified with tolerance types "Relative" and "Percent".



- The upper tolerance value has to be greater than or equal the lower one (High \geq Low) or, respectively, the target weight has to be greater than or equal the lower tolerance value and smaller than or equal the upper tolerance (Tol + \geq Target \geq Tol -).

3.7.3 Specifying target number of pieces

Prerequisite

- ✓ At least one of the counting soft keys n is activated.

Determining the piece weight

- ➔ Apply the reference parts (factory setting: 10 pieces) and press n. The number of reference pieces is displayed.



- For alternate procedures to determine the piece weight refer to the counting section.
- If you use the unit PCS, the tolerance type percent is not available.

Weighing in the target number of pieces

- ➔ Proceed as described in section "Weighing in target values".

The display unit is PCS.

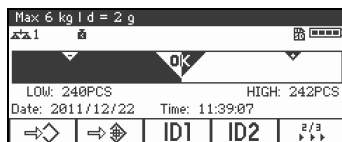
Target definition			
Tol.type:	Absolute		123
Low:	10	PCS	
High:	0	PCS	
ESC			OK

3.7.4 Checkweighing/counting display

Prerequisite

- ✓ Target weighing or counting has been settled.

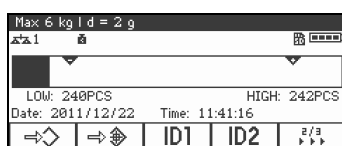
Default layout



Weight in Tolerance



Over weight



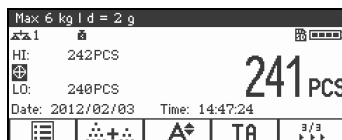
Under weight


Big font mode



In big font mode, soft keys line will disappear automatically if no key is pressed within 2 seconds. Checkweighing status information is displayed. If any soft key is pressed, soft key line will appear again instead of checkweighing status info.

3-line mode



If checkweighing result meets the specified checkweighing range requirement, target value line  will be highlighted, indicating the current result meets the checkweighing range requirement.

3.8 Using stored preset parameters

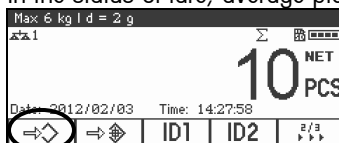
3.8.1 Store article parameters

Article parameters include the following: Preset Tare, Average piece weight, Article number, Article name.

Tolerance type, target weight and tolerance can be saved during checkweighing application.




50 target values can be stored in terminal at most.

1. In the status of tare, average piece weight or checkweighing.



Press , the first record number in status 'free' will be displayed.




2. If necessary, you can choose one record via numeric keys or direction soft keys . Press .
3. If necessary, press soft key  to edit article number and article name.




'Record loaded!' appears shortly on the screen. Target record is stored under the selected number.







If the selected record is already occupied, 'Occupied' status is displayed.

1. If you want to overwrite the old record, please press soft key . 'Overwrite record?' appears.
Press 'Yes' to overwrite it, press 'No' to cancel!
2. If article number or article name existed, the later same article number or article name can't be stored. If so, 'Overwrite record?' will appear.
Press 'Yes' to overwrite it, press 'No' to cancel, then re-edit it.


Quick store

- After define article parameters, please enter a numeric key whose number status is free, press . Article parameters will be quickly stored!

3.8.2 Recall targeted record

1. Press .
The first used record is displayed.
2. Enter the required record number or choose one record using direction keys /.
3. Press .
'Record loaded!' appear shortly on the screen. The display turns back to weighing interface. Tare, Average piece weight, article number, article name or Checkweighing/counting will be specified based on preset parameters.






Quick Recall

- Enter the required record number, press .





3.9 Edit letter and number

ICS241 supports the input of numbers, English letters and punctuation. Lots of information can be entered via the keyboard, e.g. article information, article number, ID1, ID2.

When letters or numbers are required to input, one of the following symbols is displayed on the upper right corner of the screen:

-  Numeric input.
 -  Capital Letters and other special characters input.
 -  Lowercase and other special characters input.
- Press  key, to switch between capital letters and lowercase letters.
- The method of text input is similar to the operation on cellphone.
Each numeric key is distributed four letters at most.
- Confirm input pressing the key .

Example: Input 'ICS241'.

1. Ensure  is displayed.
2. Press key 4 three times to enter letter 'I'.
3. Press key 2 three times to enter letter 'C'.
4. Press key 7 four times to enter letter 'S'.
5. Press key  two times to switch numeric enter .
6. Enter digit 2.
7. Enter digit 4.
8. Enter digit 1.
9. Press key  to confirm.

4. Menu settings

In the menu settings can be changed and functions can be activated. This enables adaptation to individual weighing requirements.
The menu consists of the following 5 main blocks containing various submenus on several levels.

Scale	see section 4.2
Application	see section 4.4
Terminal	see section 4.5
Communication	see section 4.6
Maintenance	see section 4.7

4.1 Operating the menu

Calling up the menu and entering the password
The menu has 2 different operating levels: Operator and Supervisor. The supervisor level can be protected by a password. When the device is delivered, both levels are accessible without a password.

Operator menu

Press **↵** and keep it pressed until Enter code appears.
Press **↵** again.
The menu item **Terminal** is displayed. Only parts of the submenu are accessible.

Supervisor menu

Press **↵** and keep it pressed until Enter code appears.
Enter the password and confirm with **↵**.
The first menu item Scale is highlighted.



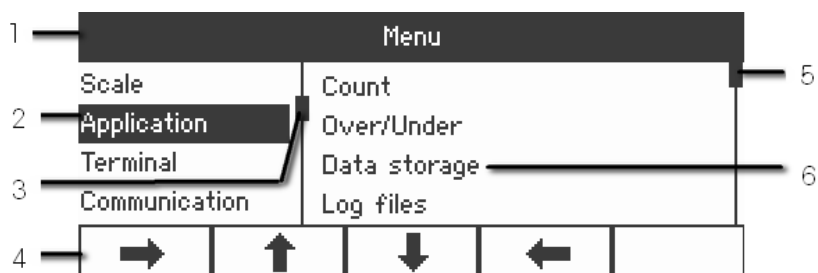
No supervisor password has been defined when the device is first delivered. Therefore, confirm the password inquiry with **↵** when you call up the menu for the first time.
If a password has still not been entered after a few seconds, the scale returns to the weighing mode.

Emergency password for Supervisor access to the menu
If a password has been issued for Supervisor access to the menu and you have forgotten it, you can still enter the menu:

Press **↵** and keep it pressed until Enter code appears
Press **→0←** 3 times and confirm with **↵**.

Display presentation in the menu

Menu items are displayed together with their parental level. The following example shows the menu start screen.



1. Menu info line, i.e. menu path of the current menu item
2. Menu items; the selected menu item is highlighted
3. Scroll flag (left), like the scroll bar of your PC
4. Navigation line
5. Scroll flag (right), like the scroll bar of your PC
6. Sub-menu items

4.1.1 Numeric operation in the menu, e.g. enter date

Supervisor menu

Change highlight displayed digits: directly press digital keyboard(0—9), digits can be entered.

Press **→**, move to next digit (right of the current one), press **←**, move to former digit(left of the current one).

Repeat step 1 and 2 until all digits are set.

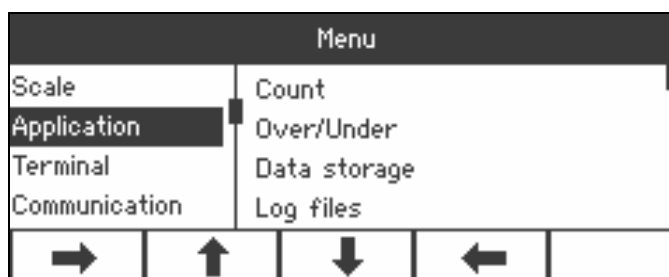
Press **↵** to confirm.

4.1.2 Exit menu

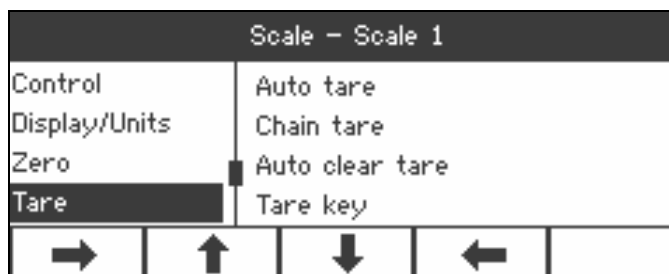
1. Press **⏻**.
 2. The last menu item End appears. 'Save settings ?' is displayed.
 3. Press OK or **↵**.
 4. menu changes are saved and the terminal returns to the weighing mode
- or -
- Press ESC and return to menu settings.
- or -
- Press NO to discard changes and return to the weighing mode.

4.1.3 Selecting and setting parameters in the menu

Example: Setting of the Chain tare function

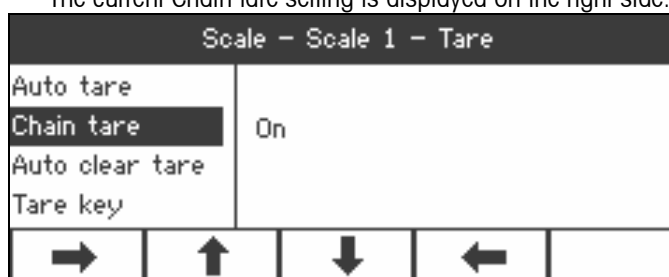


1. In the menu start screen press the soft key **→** to switch to the right side. The first submenu 'Application' gets highlighted.
2. Use the soft keys **↓** / **↑** to select Tare. The Tare submenus are displayed on the right side.

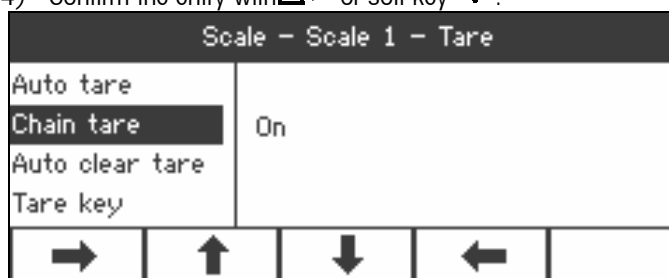


3. Press the soft key **→** to open the selected (highlighted) menu item Tare. The Tare submenus are displayed on the left side.
 - 1) Use the soft keys **↑**/**↓** to select Chain tare.

The current Chain tare setting is displayed on the right side.



- 2) Press the soft key to open the selected (highlighted) menu item Chain tare. All possible Chain tare settings are displayed, the current setting is highlighted on the right side.
- 3) Use the soft keys **↑/↓** to change the Chain tare setting
- 4) Confirm the entry with **↵** or soft key **OK**.



If chain tare is displayed, either soft key **OK** or transfer key **↵** can be used to confirm settings.

4.2 Scale menu block

Factory settings are printed in bold in the following overview.






4.2.1 Overview

Level 1	Level 2	Level 3
Calibration		
Display/Units	Unit 1	g, kg , oz, lb, t
	Unit 2	g , kg, oz, lb, t
	Resolution	
	Unit roll	On, Off
Zero	AZM	Off, 0.5d, 1d, 2d, 5d, 10d
Tare	Auto tare	Off, On
	Chain tare	Off, On
	Auto clear tare	Off, On, 9d
Restart	Off, On	
Filter	Vibration	Low, Medium , High
	Process	Universal , Dosing
	Stability	Fast, Standard , Precise
MinWeigh	Function	Off, On
Reset	Perform Reset?	


4.2.2 Description of the Scale menu block

Scale → Calibration

This menu item is not available for verified scales.

Perform calibration?	<ol style="list-style-type: none"> 1 Unload scale. 2 Start calibration with . <li style="padding-left: 20px;">The scale determines the zero point -0- appears in the display. The calibration weight to be placed on the scale flashes in the display. 3 If necessary, change the weight value displayed with  T . 4 Place the calibration weight on the scale and confirm with . <li style="padding-left: 20px;">The scale calibrates with the calibration weight loaded. After calibration is completed, -Done- appears briefly on the display.
Note	Abort the calibration process by pressing  .

Scale → Display/Units – Weighing unit and display accuracy

Unit 1	Select weighing unit 1: g, kg, oz, lb, t
Unit 2	Select weighing unit 2: g, kg, oz, lb, t
Resolution	Select readability (resolution), the possible settings depends on the connected scale capacity.
Unit roll	When unit roll is switched on, the weight value can be displayed in all available units with  .
Notes	<ul style="list-style-type: none"> In case of verified scales, individual sub-items of the Display menu item may not be available or only to a limited extent, depending on the respective country.

Scale → Zero – Automatic zero update

AZM(Automatic zone maintenance)	<p>On verified scales, this menu item does not appear.</p> <p>Switching on/off automatic zero update and selecting zeroing range.</p> <p>Possible settings: Off; 0.5 d; 1 d; 2 d; 5 d; 10 d</p>
--	--

Scale → Tare – Tare function

Auto tare	Switching on/off automatic taring
Chain tare	Switching on/off chain tare
A-Clear tare	<p>Switching on/off automatic clearing of the tare weight when the load is removed from the scale.</p> <ul style="list-style-type: none"> On The tare weight is automatically cleared if the gross weight is 0 or below zero Off No automatic clearing of the tare weight 9 d The tare weight is automatically cleared if the gross weight is within +/- 9 display steps.

Scale → Restart – Automatic saving of zero point and tare value

Restart	When the restart function is activated, the last zero point and the tare value are saved. After switching the scale off/on or after a power interruption, the device continues to work with the saved zero point and tare value.
----------------	--


Scale → Filter – Adaptation of the ambient conditions and the weighing type

Vibration	Adaptation to the environment conditions
Low	<ul style="list-style-type: none"> Very steady and stable environment. The scale works very rapidly, but is very sensitive to external influences.
Medium	
High	<ul style="list-style-type: none"> Normal environment. The scale operates at medium speed. Restless environment (slight vibrations). The scale works more slowly, but is less sensitive to external influences.

<p>Process</p> <p>Universal</p> <p>Dosing</p>	<p>Adaptation to the weighing process</p> <ul style="list-style-type: none"> • Universal setting for all weighing samples and normal weighing goods. • Dispensing liquid or powdery weighing samples.
<p>Stability</p> <p>Fast</p> <p>Standard</p> <p>Precise</p>	<p>Adjusting the stability detector</p> <ul style="list-style-type: none"> • The scale operates very fast. • The scale operates at medium speed. • The scale operates with the greatest possible reproducibility. <p>Slower the scale works, greater the reproducibility of the weighing results.</p>

Scale → MinWeigh – Minimum weighing value

Before you can use this function, the METTLER TOLEDO service technician has to determine and to enter a minimum weight value.

<p>Function</p>	<p>Switching minimum weight function on/off.</p> <p>If the weight on the scale drops below the stored minimum weight,  appears in the symbols and info line.</p>
------------------------	---

Scale → Reset – Resetting scale settings to factory settings

<p>Perform reset ?</p>	<p>Confirmation inquiry</p> <ul style="list-style-type: none"> • Reset the analog scale settings to factory settings with YES. • Do not reset scale settings with NO.
-------------------------------	---

4.3 Application menu block



Factory settings are printed in **bold** in the following overviews

4.3.1 Overview



Level 1	Level 2	Level 3	Level 4	
Count	Reference n	1-60000		
	Min. sample weight	Off ,97.5%,99.0%,99.5%		
	Accuracy display	Off ,On		
	APW(average piece weight) optimization	Off ,On		
	Auto sampling	Off ,On		
	Auto clear APW(average piece weight)	Off ,On		
Over/Under	Tolerance	Off , Abslue,Relative,Percent		
	Default values	Activate	Off ,On	
		Relative weight	Tolerance-, Tolerance+	
		Percent weight	Tolerance-, Tolerance+	
		Relative pieces	Tolerance-, Tolerance+	
	Output	Setpoint tol-		
Good print		Off ,On		
Data storage	Article name	Activate	Off ,On	
	Article number	Activate	Off ,On	
	Delete all	Start?		
	Delete record			
	Print records ?			
Log files	Activate	Off ,On		
	Item 7 ... Item 10	Not used , Average piece weight, Quantity, Article name, Article number, ID1 , ID2, Device identifier, Device location, SNR(serial number) scale		
Auto totalize	Activate	Off , On		
Reset	Perform reset?			

4.3.2 Description

Application->Count

Reference n	Setting reference number(1-60000) After setting, the n in soft key  n will automatically display the set number.
Min. sample weight	Setting the min. sample weight. Off: no requirement to sample weight. 97.5%, 99.0%, 99.5%: min. sample weight. It will remind user that more pieces need to be added to reach the defined sample weight.
APW opt. (average piece weight optimization)	Activate / deactivate APW(average piece weight) optimization function. After activation, the precision of the APW(average piece weight) can be improved by adding sample pieces. Note: If this symbol  is displayed in the info line, the added number of sample pieces must be smaller than the current number of pieces, or the function will be invalid.

Application->Count -> Auto sampling & Auto clear APW

Auto sampling	Activate /deactivate Auto sampling. After activation, this symbol  will be displayed in info line. Load samples in the weighing platform, the number of samples must be the same as the 'reference number'. After the sample is steady, the terminal will auto sample. The display contents changes from sample weight to the number of samples piece.
Auto clear APW(average piece weight)	Activate /deactivate Auto clear APW(average piece weight). After activation, this symbol  will be displayed in info line. If the current status is counting , unload the weighing platform. After being steady, the terminal will auto clear APW(average piece weight) ,exiting counting mode and returning to weighing interface.

Application-> Log files -> Set log files

Activate? Item 7...Item 10	If activated, all weighing information will be saved in log files in SD card (Secure digital memory card: A slot of SD card is in the front of scale, customers can insert the card if they need to use the function of log files.) Other additional info can be saved besides the 6 fixed items. 1. Select the item number. 2. Assign contents to this item. Before you delete all the stored weighing records, a warning message will appear.
---------------------------------------	---

Application-> Over/Under ->Set checkweighing parameters

<p>Tolerance type</p> <p>Off</p> <p>Absolute</p> <p>Relative</p> <p>Percent</p>	<p>Specify which parameters have to be entered for checkweighing.</p> <ul style="list-style-type: none"> No tolerance type predefined, it can be set individually when entering checkweighing/counting parameters. A low and a high weight value must be entered. These weights and all weights within this range are treated as being within tolerance. The target weight has to be entered as an absolute weight, upper and lower tolerances as weight deviations from the target weight. The target weight has to be entered as an absolute weight, upper and lower tolerances as deviations in percent from the target weight. Not possible for counting.
<p>Default values</p> <p>Activate</p> <p>Relative weight</p> <p>Percent weight</p> <p>Relative pieces</p>	<p>If you always use the same tolerances for checkweighing/counting, you can store these tolerances and thus avoid entering tolerances all the time.</p> <p>Activating usage of default tolerance values.</p> <ul style="list-style-type: none"> Off default tolerance values not used On default tolerance values used <p>Relative weight enter the weight values for Tolerance – and Tolerance +.</p> <p>Percent weight enter the percentages for Tolerance – and Tolerance +.</p> <p>Relative pieces enter Tolerance – and Tolerance + in pieces.</p>
<p>Output</p> <p>Setpoint tol—</p> <p>Good print</p>	<p>Setting display and printing options.</p> <p>This setpoint is available on the optional digital I/O interface as well. when you are already near the target or if you need an additional setpoint for I/O control. Possible settings: 0 ... 100 % (of the "Tolerance –" value)</p> <p>Automatic printout</p> <ul style="list-style-type: none"> Off No automatic printout On Automatic printout when a stable weight value within the tolerance values exists.

Application-> Data storage ->Set Data Storage parameters

<p>Article name Article number</p> <p>Activate</p>	<p>Article name and article number can be assigned for each record. They are saved as part of targeted record, which can be displayed, printed out or sent.</p> <p>The maximum length of each article name and article number is 40 characters.</p> <p>Activate article name or article number, to identify checkweighing/counting parameter settings.</p> <ul style="list-style-type: none"> • Deactivate Article name and article number can not be defined during the period targeted record definition. • Activate When you press target key, you can enter article name or article number via keyboard in data storage definition.
<p>Delete all</p>	<p>Delete all records. Before the code will be deleted, there will be a warning message.</p>
<p>Delete record</p>	<p>Delete one record.</p>
<p>Print records</p>	<p>Printout article/all current part parameters.</p>
<p>Note</p>	<p>Edit targeted record via SICS command.</p>

Application ->Reset ->Reset application settings to factory settings

<p>Perform reset?</p>	<p>Confirmation inquiry</p> <ul style="list-style-type: none"> • Reset the application settings to factory settings with YES. • Do not reset application settings with NO.
------------------------------	--

4.4 Terminal menu block

Factory settings are printed in **bold** in the following overview.



4.4.1 Overview

Level 1	Level 2	Level 3	Level 4	Level 5	
Device	Language	English, Chinese			
	Sleep/Power off	Off , 1 minute, 3 minute, 5 minute, 15 minute, 30 minute			
	Display	Layout	Default , 3-Line mode, Big font		
		Auxiliary line	Not used, Date & Time , Gross, Net, Tare, High resolution, Average PW, Reference count, Quantity, Article name, Article number, ID1, ID2, Total net, Total piece, n , Record number, Target, Deviation, Device identifier, Device location		
		Contrast	1 ... 10		
		Brightness	1 ... 10		
		Backlight	Off, 5 seconds, 10 seconds, 30 seconds, 1 minute, On		
		Weight hold	0 s ... 10 s		
	Keyboard	Key lock	Power Clear Unit switch Info Transfer Keypad	Lock, Unlock	
		Info key	Item 1 ... Item 20	Not used, Date & Time, Gross, Net, Tare, Net & High Res. , Average PW, Reference count, Quantity, Article name, Article number, ID1, ID2, Total net, Total piece, n, Record number, Target, Tolerance -, Tolerance +, Tolerance type, Deviation, Device identifier, Device location, Dev. name, SNR(serial number) scale, Firmware vers.	
	Date & Time	Format	yyyy/mm/dd 24h , dd/mm/yyyy 24h, mm/dd/yyyy 12h		
		Date	yyyy/mm/dd , dd/mm/yyyy, mm/dd/yyyy		

		Time	hh:mm
		Morning /Afternoon	Morning /Afternoon
	Beep	On , Off	
Access	Supervisor	Password	
Reset	Perform reset?		

4.4.2 Description of the terminal menu block

Terminal->Device -> General device settings




Language	Select language. Possible languages: English, Chinese .
Sleep (User access)	This menu item only appears on devices in mains operation. When Sleep is activated, the device switches display and backlighting off after the time period set not in use and gross weight is zero. Display and backlighting are switched on again by pressing a key or if the weight changes. Possible settings: Off, 1 min, 3 min, 5 min, 15 min, 30 min (approximate values).
Power Off (User access)	This menu item only appears on devices in battery operation. When Power Off is activated, the device switches itself automatically off when not in use after the time period set. After this, the scale must be switched on again using  . Possible settings: Off, 1 min, 3 min, 5 min, 15 min, 30 min (approximate values).
Display	Configuring the display window. For details see introduction.
Layout	Selecting the display mode of the weight value. Possible settings: Default , Big font mode, 3-Line mode
Auxiliary Line	Selecting the contents of the auxiliary display line. Possible settings: Not used (auxiliary line blank), Date & Time , Gross, Net, Tare, High resolution (weight value in higher resolution), ID1, ID2, Device identifier, Device location, Target, Deviation, Average piece weight, Reference count, Quantity, Record number, Article name, Article number, Total net, Total piece, n.
Contrast (User access)	Setting the contrast of the display. Possible settings: 1 ... 5 ... 10
Brightness (User access)	Setting the brightness of the display. Possible settings: 1 ... 5 ... 10
Backlight (User access)	Setting whether and after which time the background lighting is to be switched off. Devices with a battery switch the background lighting automatically off by default when no action takes place at the device for approx. 5 seconds. Possible settings: Off (no background lighting), 5 sec, 10 sec, 30 sec, 1 min, On (background lighting always on) (approximate time values)
Weight hold	Setting how long the weighing result is frozen in the display after the transfer key  has been pressed or auto print was generated. Possible settings: 0 s ... 10 s.

Keyboard	Switching keys on/off and setting info key.
Key lock	<p>Selecting keys to lock/unlock.</p> <p>Possible keys: Power (⏻) , Clear (C) , Unit switch (↺) , Info. (i) Transfer (↷) , Numeric keypad (0-9).</p>
Info key	<p>Configuring up to 20 items to be displayed using the info key(i) .</p> <ol style="list-style-type: none"> 1. Select the item to be configured (Item 1 ... Item 20). 2. Assign contents.
Note	<ul style="list-style-type: none"> • If you want to lock the tare key (→T←) and/or the zero key (→0←) ask the METTLER TOLEDO service technician. • Locked keys cannot be activated by the user, but the supervisor can still activate these keys by entering his password.

Date & Time	
Format	<p>Selecting date format:</p> <p>Possible settings: yyyy/mm/dd 24h, dd/mm/yyyy 24h, mm/dd/yyyy 12h</p>
Date	<p>Setting date in the selected format :</p> <p>yyyy/mm/dd, dd/mm/yyyy, mm/dd/yyyy</p>
Time	<p>Setting time in the following format: hh:mm</p>
Morning /Afternoon	<p>When time zone is selected ,set AM/PM</p>

Beeper	<p>Switching beeper on/off.</p> <p>Each keystroke can be confirmed by a short beep.</p>
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Terminal -> Access – Password for Supervisor menu access

<p>Supervisor</p> <p>Enter code</p> <p>Retype code</p>	<p>Entering password for Supervisor menu access</p> <p>Request to enter password → Enter password and confirm with  .</p> <p>Request to repeat the password entry → Enter password again and confirm with .</p>
<p>Notes</p>	<ul style="list-style-type: none"> • The password can consist of up to 4 characters (keys). •  must not be part of the password. It is required for confirming the password and may only be used in combination with another key. • If you enter a wrong password or make a typing error when retyping, 'code error' appears in the display.

Terminal -> Reset – Reset terminal settings to factory settings

<p>Perform reset?</p>	<p>Confirmation inquiry</p> <ul style="list-style-type: none"> • Reset the terminal settings to factory settings with YES. • Do not reset terminal settings with NO.
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4.5 Communication menu block

The Communication menu block consists of the following subblocks:



COM 1	Parameter settings for the standard RS232 interface COM 1.
COM 2	Parameter settings for the optional interface COM 2. The interfaces identify themselves. Therefore only those menu settings appear which are relevant for the individual interface. If no optional interface is installed, the entire COM 2 menu will not appear.
Templates	Define templates to be selected via COM x -> Printer -> Template.
Print language	Language used for printout.

4.5.1 RS232 menu (COM 1/COM 2)

Level 1	Level 2	Level 3	Level 4	
Mode	Print, Auto print, Instant print, Continuous, Dialogue , External enter, Toledo-Weight, Toledo-Count.			
Print	Type	ASCII print , Label printer, GA46 printer, PQ16 printer, Template printer.		
	Print template	Standard , Template 1...Template 5		
	Plus template	Off , Template 1...Template 5		
	Total template	Off , Template 1...Template 5		
	ASCII format	Line format	Multiple , Single, Fixed	
		Line length	1 ... 24 ... 100	
		Separator	. , ; - _ / \ Space	
		Add line feed	0 ... 9	
Destination	Off , Tare preset, ID1, ID2, Average piece weight, Record number, Article name, Article number			
Parameter	Baud	300, 600, ..., 9600 , ..., 57600, 115200		
	Parity	7 none, 8 none , 7 odd, 8 odd, 7 even, 8 even		
	Checksum	On, Off		
	STX	On, Off		
Reset RS232	Perform reset?			

4.5.2 RS232 menu (COM 1/COM 2) description

Communication->COM x ->Mode - Operating mode of the serial interface

Print	Manual data output to the printer with  .
Auto print	Automatic output of stable results to the printer (e.g., for series weighing operations).
Instant print	Immediate manual data output to the printer with  (not verifiable).
Continuous	Ongoing output of all SICS format weight values via the interface.
Dialog	Bi-directional communication via MT-SICS commands, control of the device via PC.
External enter	Enter other than via terminals (e.g. barcode scanner). The use of enter data is defined in the destination menu block.
Toledo-Weight	TOLEDO continuous mode with weighting results.
Toledo-Count.	TOLEDO continuous mode with counting results.

Communication -> COM x -> Printer – Settings for protocol printout

Type	<p>Selecting printer type from the following: ASCII print, Label printer, GA46 printer, PQ16 printer, Template printer.</p> <p>Notes If Label printer is selected, the transmitted data does not include the name of the variable, e.g. Date, Gross, ID1, but the value and, if appropriate, the unit as a separate line. This allows the label printer to fill its template with the required data.</p> <p>If Template printer is selected, the terminal will automatically scan the SD card getting print template configured by users. Further the template name will be displayed automatically in the template list. No option in the template list means no template files are got, users should check whether template files are existed in SD card.</p>
Template	<p>Selecting protocol printout. Possible settings: Standard, Template 1 ... Template 5</p>
ASCII Format	Selecting formats for the protocol printout.
Line format	<p>Selecting line format from the following:</p> <ul style="list-style-type: none"> • Multiple (multiple lines) • Single (single line) • Fixed (records output in single lines; every record includes the number of characters that was defined under 'Line length'.
Line length	<p>Setting line length Possible settings: 0 to 100 characters Factory setting: 24 characters This item is only displayed for the line formats 'Multiple' and 'Fixed'</p>
Separator	<p>Selecting the separator: Possible settings: , ; : / \ _ – and space. This item is only displayed for the line format 'Single'.</p>
Expanded	Printout with bigger font size on METTLER TOLEDO printers.

Add line feed	Adding linefeeds Possible settings: 0 ... 9
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Communication → COM x → Destination – Destination for barcode entry

None	Enter destination is not predefined. The enter will be shown on the display, you can decide what to do with the enter.
Tare preset	Enter via barcode is assigned as tare preset.
ID1, ID2	Enter via barcode is assigned as ID1 or ID2.
Average PW	Enter via barcode is assigned as average piece weight.
Record number	Enter via barcode is assigned as record number.
Article name	Enter via barcode is assigned as article name. Then search the corresponding data in material database
Article number	Enter via barcode is assigned as article number. Then search the corresponding data in material database.

Communication → COM x → Parameter – Communication parameters

Baud	Selecting baud rate Possible settings: 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200
Parity	Selecting parity Possible settings: 7 none, 8 none, 7 odd, 8 odd, 7 even, 8 even
Checksum	Activating/deactivating checksum byte
STX	Activating/deactivating STX If STX is enabled, the STX signal (0x02) is sent at the beginning of each output string that is sent via the interface.

**Communication → COM x → Reset COM x –
Reset communication settings to factory settings**

Perform reset?	Confirmation inquiry <ul style="list-style-type: none"> • Reset the communication settings to factory settings with YES. • Do not reset communication settings with NO.
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4.5.3 Digital I/O menu blocks (COM 2)

Level 1	Level 2	Level 3
Input	Input pin 1 Input pin 2	Off, Zero, Tare, Transfer, Switch unit, Clear, Reference, Switch scale.
Output	Ready, Stable, Tare, Zero, < MinWeigh, >= MinWeigh, Underload, Overload, <= Setpoint 1, > Setpoint 1, <= Setpoint 2, > Setpoint 2, <= Setpoint tol-, >Setpoint tol-, < SP. Tolerance-, < Tolerance -, Good range, Target, > Tolerance +	Off, Output pin 1 ... Output pin 4
Setpoints	Setpoint 1, Setpoint 2	
Output mode	Continuous, Stable	
Reset digital I/O	Perform reset?	
Note	For the set of 'Input pin', 'Switch scale' is only available in 2 nd scale version.	

COM 2 (Digital I/O) -> Input/Output

Configure inputs

1. Select an input pin.
2. Assign an input signal to the selected enter pin.

Configure outputs

1. Select an output signal.
2. Assign the desired output pin.

COM 2 (Digital I/O) -> Setpoints – Enter values

Setpoint 1	Enter value for setpoint 1.
Setpoint 2	Enter value for setpoint 2.

COM 2 (Digital I/O) -> Output Mode – Behaviour of the digital outputs

Continuous	Digital outputs are updated continuously.
Stable	Digital outputs are updated only when the weight is stable.

4.5.4 Templates menu block

Level 1	Level 2	Level 3
Template 1 ... Template 5	Line 1 ... Line 25	Not used, Header, Date, Time, Gross, Net, Tare, High resolution, ID1, ID2, Device identifier, Device location, Target, Tolerance-, Tolerance+, Tolerance type, Article name, Article number, Deviation, Weight position, Average piece weight, Reference count, Quantity, Record number, Total net, Total piece, n, SNR(serial number) scale, Star line, New line, Form feed.

Configure templates

1. Select a template.
2. Select the line to be configured.
3. Assign the line contents.



Header can be specified via SICS command.

It's invalid for Template printer in template setting. You can download templates from MT website or call MT technicians to customize the templates what you need.

4.5.5 Print language menu block

The menu block is only available in China or if the displayed language is Chinese.

Display language	Printer language and interface language are the same.
English	Printer language is English.
Chinese	Printer language is Chinese.

4.6 Maintenance menu block

<p>Test scale</p>	<p>Testing the scale</p> <ol style="list-style-type: none"> 1. Scales with an analog interface will offer the test procedure described below. 2. The scale checks the zero point, -0-appears in the display. 3. The test weight value flashes on the display. If necessary, adjust the weight value displayed using →T←. 4. Put the test weight on the scale and confirm with ↵. The scale checks the test weight. 5. After the test is completed, the deviation from the last calibration briefly appears in the display, ideally *d=0.0 g, after which the device changes to the next menu item.
<p>Keyboard test Start?</p>	<p>Keyboard test</p> <ol style="list-style-type: none"> 1. Press ↵ to start the keyboard test. 2. Press the keys in the displayed order. <p>If the key works, the device switches to the next key.</p>
<p>Display test Start?</p>	<p>Display test.</p> <ol style="list-style-type: none"> 1. Press ↵ to start the display test. A checkerboard pattern is displayed in all colors. 2. Press ↵ to leave the display test. <p>The display works properly if the dark and bright fields are displayed without missing pixels.</p>
<p>Serial number</p>	<p>Display of the serial number of the counting scale.</p>
<p>Print setup</p>	<p>Printout of a list of all menu settings</p>
<p>Reset all Perform reset?</p>	<p>Reset all settings to factory settings</p> <p>Confirmation inquiry</p> <ul style="list-style-type: none"> • Reset all settings to factory settings with YES. • Do not reset settings with NO.

5. Event and error messages

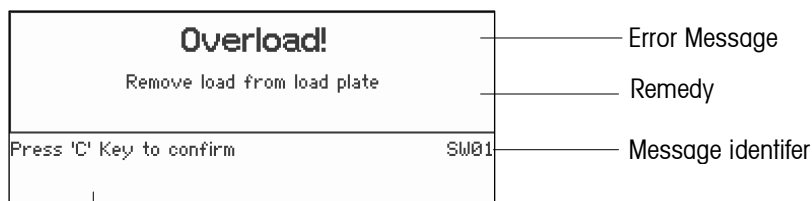
5.1 Error conditions

Error	Cause	Remedy
Display dark	• Backlighting set too dark	→ Set backlighting brighter.
	• No mains voltage	→ Check mains.
	• Power supply not plugged in	→ Plug in power supply.
	• Brief fault	→ Switch device off and on again.
Weight display unstable	• Location with vibrations (Restless installation location)	→ Avoid vibration, or adjust vibration filter.
	• Drift	→ Avoid drift.
	• Contact between weighing pan and/or weighing sample and surroundings	→ Avoid contact between weighing pan and/or weighing sample and surroundings.
	• Mains fault	→ Check mains.
Incorrect weight display	• Incorrect zeroing	→ Unload scale, set to zero and repeat weighing operation.
	• Incorrect tare value	→ Clear tare.
	• Contact between weighing pan and/or weighing sample and surroundings	→ Avoid contact between weighing pan and/or weighing sample and surroundings.
	• Weighing platform tilted	→ Level weighing platform.
[_ _ _ _]	• Load plate not on the scale • Weighing range not reached (less than 9 d)	→ Place load plate on the scale. → Set to zero.
[_ _ _ _]	• Weighing range exceeded (more than 9 displayed resolution)	→ Unload scale. → Reduce preload.
— — — — —	• Result not yet stable	→ If necessary, adjust vibration filter
'Attention: Approval invalid' alternating with metrological data	• Approval was tampered with	→ Call METTLER TOLEDO service technician.

5.2 Errors and warnings

5.2.1 Error messages

Error messages contain the following information:

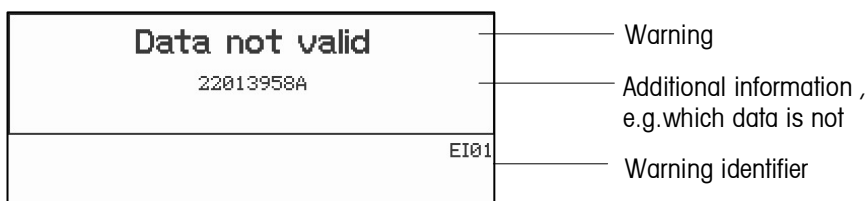


How to exit the message

5.2.2 Warnings

Warnings are displayed briefly and then disappear automatically.

Example



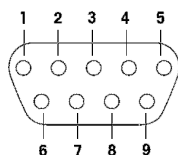
6. Technical data and accessories

6.1 Weighing terminal technical data

Housing	<ul style="list-style-type: none"> • ABS Plastic
Weighing platform	<ul style="list-style-type: none"> • 304 stainless steel
Display	<ul style="list-style-type: none"> • LCD(liquid crystal graphical) display, with backlighting • Size: 125 x 50 mm/240 x 96 pixels
Keyboard	<ul style="list-style-type: none"> • Tactile-touch membrane keypad • Scratch-resistant labeling
Scale weight	<ul style="list-style-type: none"> • Net weight: 3.3 kg
Adapters power supply	<ul style="list-style-type: none"> • Rated voltage 100 to 240 V, +10/-15%, 50/60 Hz • Output voltage: DC 12V, 0.8A
Battery power supply	<ul style="list-style-type: none"> • 6 D-size batteries (Charging not available in the scale)
Environment conditions	<ul style="list-style-type: none"> • Application indoor use only • Altitude up to 2000 m • Temperature range -10° to + 40 °C • Humidity 15 to 85% relative
Interfaces	<ul style="list-style-type: none"> • 1 standard RS232 integrated • 1 further optional interface possible(RS232 or Digital I/O)

6.2 Interface definition

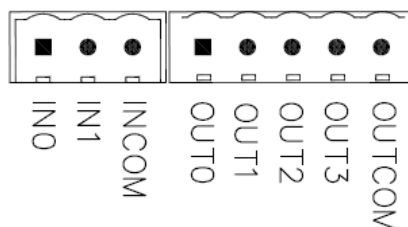
6.2.1 RS232 pin connector



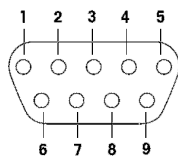
RS232	COM1 (Standard)	COM2 (Option)
Pin1	NC	NC
Pin2	RXD	RXD
Pin3	TXD	TXD
Pin4	NC	NC
Pin5	GND	GND
Pin6	NC	NC
Pin7	NC	NC
Pin8	NC	NC
Pin9	VCC +5.0V/150mA	NC

Tip: **NC** not connected

6.2.2 Digital I/O connector (Option)



6.2.3 2nd Scale connector (Option)



Pin 1 — +EXC
 Pin 2 — +SEN
 Pin 3 — Shield
 Pin 4 — -SEN
 Pin 5 — -EXC
 Pin 7 — +SIG
 Pin 8 — -SIG

7. Appendix

7.1 Geo Values

For weighing instruments verified at the manufacturer, the Geo Code value indicates the country or geographical zone for which the instrument is verified. The Geo Code value set in the instrument (e.g. "Geo 12") appears briefly after switching the scale on.

The table "Geo Code values 3000e" shows the Geo Code values for latitude areas.

North latitude/ South latitude Unit (° / ')	Altitude , meter										
	0	325	650	975	1300	1625	1950	2275	2600	2915	3250
	325	650	975	1300	1625	1950	2275	2600	2925	3250	3575
	Altitude , feet										
0	1060	2130	3200	4260	5330	6400	7460	8530	9600	10660	
1060	2130	3200	4260	5330	6400	7460	8530	9600	10660	11730	
0° 0' – 5° 46'	5	4	4	3	3	2	2	1	1	0	0
5° 46' – 9° 52'	5	5	4	4	3	3	2	2	1	1	0
9° 52' – 12° 44'	6	5	5	4	4	3	3	2	2	1	1
12° 44' – 15° 6'	6	6	5	5	4	4	3	3	2	2	1
15° 6' – 17° 10'	7	6	6	5	5	4	4	3	3	2	2
17° 10' – 19° 2'	7	7	6	6	5	5	4	4	3	3	2
19° 2' – 20° 45'	8	7	7	6	6	5	5	4	4	3	3
20° 45' – 22° 22'	8	8	7	7	6	6	5	5	4	4	3
22° 22' – 23° 54'	9	8	8	7	7	6	6	5	5	4	4
23° 54' – 25° 21'	9	9	8	8	7	7	6	6	5	5	4
25° 21' – 26° 45'	10	9	9	8	8	7	7	6	6	5	5
26° 45' – 28° 6'	10	10	9	9	8	8	7	7	6	6	5
28° 6' – 29° 25'	11	10	10	9	9	8	8	7	7	6	6
29° 25' – 30° 41'	11	11	10	10	9	9	8	8	7	7	6
30° 41' – 31° 56'	12	11	11	10	10	9	9	8	8	7	7
31° 56' – 33° 9'	12	12	11	11	10	10	9	9	8	8	7
33° 9' – 34° 21'	13	12	12	11	11	10	10	9	9	8	8
34° 21' – 35° 31'	13	13	12	12	11	11	10	10	9	9	8
35° 31' – 36° 41'	14	13	13	12	12	11	11	10	10	9	9
36° 41' – 37° 50'	14	14	13	13	12	12	11	11	10	10	9
37° 50' – 38° 58'	15	14	14	13	13	12	12	11	11	10	10
38° 58' – 40° 5'	15	15	14	14	13	13	12	12	11	11	10
40° 5' – 41° 12'	16	15	15	14	14	13	13	12	12	11	11

41° 12' – 42° 19'	16	16	15	15	14	14	13	13	12	12	11
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North latitude/ South latitude Unit (° / ')	Altitude , meter										
	0	325	650	975	1300	1625	1950	2275	2600	2915	3250
	325	650	975	1300	1625	1950	2275	2600	2925	3250	3575
North latitude/ South latitude Unit (° / ')	Altitude , feet										
	0	1060	2130	3200	4260	5330	6400	7460	8530	9600	10660
	1060	2130	3200	4260	5330	6400	7460	8530	9600	10660	11730
41° 19' – 43° 26'	17	16	16	15	15	14	14	13	13	12	12
43° 26' – 44° 32'	17	17	16	16	15	15	14	14	13	13	12
44° 32' – 45° 38'	18	17	17	16	16	15	15	14	14	13	13
45° 38' – 46° 45'	18	18	17	17	16	16	15	15	14	14	13
46° 45' – 47° 51'	19	18	18	17	17	16	16	15	15	14	14
47° 51' – 48° 58'	19	19	18	18	17	17	16	16	15	15	14
48° 58' – 50° 6'	20	19	19	18	18	17	17	16	16	15	15
50° 6' – 51° 13'	20	20	19	19	18	18	17	17	16	16	15
51° 13' – 52° 22'	21	20	20	19	19	18	18	17	17	16	16
52° 22' – 53° 31'	21	21	20	20	19	19	18	18	17	17	16
53° 31' – 54° 41'	22	21	21	20	20	19	19	18	18	17	17
54° 41' – 55° 52'	22	22	21	21	20	20	19	19	18	18	17
55° 52' – 57° 4'	23	22	22	21	21	20	20	19	19	18	18
57° 7' – 58° 17'	23	23	22	22	21	21	20	20	19	19	18
58° 17' – 59° 32'	24	23	23	22	22	21	21	20	20	19	19
59° 32' – 60° 49'	24	24	23	23	22	22	21	21	20	20	19
60° 49' – 62° 9'	25	24	24	23	23	22	22	21	21	20	20
62° 9' – 63° 30'	25	25	24	24	23	23	22	22	21	21	20
63° 30' – 64° 55'	26	25	25	24	24	23	23	22	22	21	21
64° 55' – 66° 24'	26	26	25	25	24	24	23	23	22	22	21
66° 24' – 67° 57'	27	26	26	25	25	24	24	23	23	22	22
67° 57' – 69° 35'	27	27	26	26	25	25	24	24	23	23	22
69° 35' – 71° 21'	28	27	27	26	26	25	25	24	24	23	23
71° 21' – 73° 16'	28	28	27	27	26	26	25	25	24	24	23
73° 16' – 75° 24'	29	28	28	27	27	26	26	25	25	24	24
75° 24' – 77° 52'	29	29	28	28	27	27	26	26	25	25	24
77° 52' – 80° 56'	30	29	29	28	28	27	27	26	26	25	25
80° 56' – 85° 45'	30	30	29	29	28	28	27	27	26	26	25
85° 45' – 90° 0'	31	30	30	29	29	28	28	27	27	26	26

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