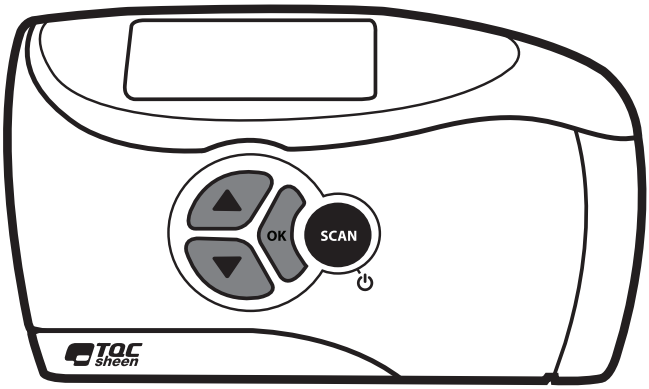


Glossmeter

(GL0010, GL0030)

Operating Instructions (V2.0 1220)

IMPORTANT! Before taking this instrument in use we strongly advise you to read this manual carefully.

Trademark and copyright

Manufacturer's/Supplier's address
Molenbaan 19
2908 LL Capelle aan den IJssel
The Netherlands
Tel: +31-(0)10 - 7900 100
Fax: +31-(0)10 - 7900 129
Email: info-ic@industrialphysics.com
Website: http://industrialphysics.com

TQC Sheen is part of the Inks & Coatings division of Industrial Physics
www.industrialphysics.com

WARRANTY

We will grant a warranty for a period of 12 months for TQC Sheen Glossmeter and 12 months for all related equipment from the date of delivery in respect of any evidence of faulty workmanship and materials. Should a delivered consignment prove to be contrary to contract upon inspection, the customer shall grant us the opportunity hereunder of removing the fault, or else the customer may demand replacement.

Should the supply or delivery of any improvement or replacement not prove possible, the customer may choose between having the purchase price reduced or in demanding the contract of sale to be rescinded (conversion). Damage resulting from natural wear and tear, mechanical or chemical damage, an act of God or non-compliance with the operating instructions shall be excluded from the warranty as well as mechanical interference by the customer or by third parties with TQC Sheen Glossmeter and related equipment without our written permission.

No liability will be accepted for defects, damage or injury caused due to use not carried out in accordance with the manufacturer's user instructions.

To claim warranty, the rejected product has to be sent to us together with the original invoice, any exchange before the product has been returned to us is not possible. We reserve the right to repair, exchange or supply an equivalent substitute. We are not liable for handling or transport costs. Warranty on the purchase price is limited, all liability for consequential damages or changes in technology is expelled.

This product complies to
- Machinery Directive 2006/42 / EC
- Low Voltage Directive 2006/95 / EC
- EMC Directive 2004/108 / EC

CE This product meets the Electromagnetic Compatibility Directive 89/336/EEC, amended by Directive 92/31/EEC and 93/68/EEC

RoHS conform 2011/65/EU This product is RoHS 2 compliant (2011/65/EU)

1 GENERAL

1.1 Importance of operating manual

This manual is written in order to become familiar with all the functions and possible applications of the instrument. It contains important instructions about how to use the instrument safely and economically; according to the purpose designated. Following these instructions is not only essential to avoid risks. It also reduces repair costs and down-time and increases the products reliability and service-life.

Anyone who works with the instrument shall follow the instructions in this manual, particularly the safety related instructions. Additionally local rules and regulations relating to environmental safety and accident prevention should be observed. It is mandatory that users have read and understand this manual prior to first operation of the Scrub Abrasion and Washability Tester.

1.2 User-responsibility

The user should

a) Only allow persons to work with the instrument who are familiar with the general instructions on how to work safely and to prevent accidents. The use of the instrument should have been instructed duly.
b) Regularly check the safety-awareness of personnel at work.

1.3 Responsibility of personnel

Before commencing work anyone appointed to work with the instrument should pay attention to the general regulations relating to working safety and accident prevention. The safety chapter and the warnings in this manual should have been read and understood; acknowledged as evidenced by their signature as can be placed in the Operator Qualification list Annex C.

1.4 Dangers

This instrument has been designed and constructed in accordance with state-of-the-art technology and the acknowledged safety regulations.
Nevertheless, working with the instrument could cause danger to the life and health of the operator or to others, or damage to the instrument or other property. Therefore the instrument should only be used for its designated purpose, and in a perfect technical condition. Any defect that could have a negative effect on safety should be repaired and recorded.

1.5 Designated purpose

Scrub Abrasion and Washability Tester is exclusively designed to perform washability tests of painted and coated test panels as described within the specifications. TQC Sheen will not be held liable for damage resulting from improper use.

Designated purpose also includes properly observing all instructions in the operation manual, and adherence to inspection and maintenance
schedules. TQC Sheen is entitled to request these form when warranty claims are made and during inspections to ensure safe operation and evaluate correct usage.

2 SAFETY INSTRUCTIONS

2.1 Meaning of Symbols

The following symbols for dangers are used in this instruction manual.

Possible immediate danger to the life or health of personnel.

A dangerous situation could be caused.

Special tips and particular information.

2.2 Availability of Safety Information

The instruction manual should be kept in proximity to where the instrument operates and should be visible and accessible at any time of operation.

In addition to the information contained in the instruction manual, general and local regulations for accident prevention and environmental protection shall be kept available and observed. Always ensure all guidelines in respect of safety and dangers on the instrument are in readable condition.

Avoid using it in over-high or over-low temperature environment Avoid humidity.

- Though robust in design, this instrument is precision-machined.
- Never drop it or knock it over.
- Always clean the instrument after use.
- Clean the instrument using a soft dry cloth. Never clean the
- instrument by any mechanical means such as a wire brush or
- abrasive paper. This may cause, just like the use of aggressive
- cleaning agents, permanent damage.
- Do not use compressed air to clean the instrument.
- Always keep the instrument in its case when not in use.
- We recommend annual calibration.

2.3 Dangers from Electrical Energy

- Work on the electrical supply may only be done by a qualified electrician.
- The electrical equipment of the instrument must be checked regularly. Loose connections and cables damaged by heat must be corrected immediately.
- Always make sure the instrument's power is turned off while adjusting any electrical component.

Make sure that no paint or other liquids are spilled on the electronics and optics.

2.4 Modifications to the Equipment

- Any modifications or additions or alterations to the instrument may solely be made with permission from the manufacturer otherwise the warranty will be void.
- Instruments which are not in fault-free condition must immediately be switched off
- Only use replacement parts from the original supplier. Parts used from other sources aren't guaranteed to take the loading and meet the safety requirements.

3 TRANSPORT AND STORAGE

3.1 Packing

- Please take note of pictorial symbols on the packing.
- Check for transport damages. If the packaging is damaged only accept it with a written approval of the transporter that the package was damaged.

3.2 User: Check on Receipt

- Check packing for damage
- After unpacking check complete supply.

3.3 Reporting Transport Damage and Documentation

- Any damage should be documented as accurately as possible (possibly photographed) and reported to the relevant insurers or, in the case of sales "delivered to customers works", to the supplier.

3.4 Storage and Protective Measures when not in use

- The instrument must be stored in a dry place at a temperature between 10 - 40˚C / 50 - 104˚F.
- If packing is damaged upon receipt immediately inform the forwarder and make a note on the packing list and have it signed by the forwarder. Ideally make some pictures of the damage as well.
- Store instrument in the original packing if possible.

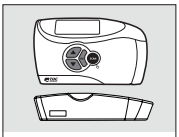
4 INSTRUMENT DATA

4.1 Name / Article

GL0010	SoloGloss 60°
GL0030	PolyGloss 20° / 60° / 85°

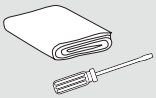
4.2 Scope of Supply

Standard supplied

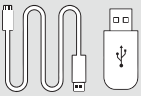


1x Glossmeter
1x Plastic case

2x AA type batteries



1x Screwdriver
1x Microfiber cleaning towel



1x USB stick (with Ideal Finish Analysis software)
1x USB cable

1x Manual
1x Calibration certificate

4.3 Technical Data

Calibration standard :	Integrated tile in the dust cover
Display :	LED display
Light source :	Extreme low drift LED light source
Batches :	max 8
Readings per batch :	max 500, non-dependent of number of angles
Total max readings :	2000 readings with time stamp
Scan function :	Yes
Statistics :	Min. / Max. / Avg. / Std.dev /number of measurements
Security :	Password protection
Software :	Ideal Finish Analysis

Dimensions

Size :	90 x 140 x 45 mm / 3,54 x 5,551 x 1,7 " (h x w x d)
Mass :	398 g

Measurement

Base dimensions :	50 x 130mm / 1,7x5,12
Orifice size :	10 x 50mm / 0,4x2,0"
Spot size :	±9 x 9 mm @ 20° / 0,2x0,2"@ 20°
	±20 x 9 mm @ 60° / 0,8x0,35"@ 60°
	±40 x 9mm @ 85° / 1,5x0,35"@ 85°
Measurement speed :	70 measurements per minute at 3 angles simultaneously
Measurement :	1 geometries - GL0010 / 3 geometries - GL0030
Power saver option :	User selectable
Units :	Gloss Units (GU)
Resolutions :	0,1 GU (0-100GU) 1GU (>100GU)

Standards*:

ISO 2813; ASTM D523; ASTM D2457; ASTM C584; AS 1580 (6022); BS 3900 D5; DIN 67530; JIS Z 8741; ISO 7668

*Exception 45° angle

	20°	60° 8	5°
Range	0-2000 GU	0-1000 GU	0-160 GU
Repeatability r*	0,4 GU	0,2 GU	0,2 GU
Reproducibility R*	1,69 GU	1,58 GU	1,88 GU
Bias*	1,2 GU	0,6 GU	1,6 GU

*Acc. ISO 2813 (range 0-100 GU)

INDEX

5 INTRODUCTION

The TQC Sheen Glossmeter enables you to measure the gloss level of different surfaces such as paint, coating, plastic, and ceramics.

The gloss level is determined by projecting light onto the surface at a specific angle and measuring the light that it reflects. The angle at which the light is projected is important. The light shall be projected onto the surface at an angle matching the surface's average gloss level. A scan angle is therefore usually specified for the various surfaces. The 60º angle is the reference angle and can be used for every surface, from matte to mirror finish. The 20º scan angle achieves the best results on high-gloss surfaces, whereas the 85º scan angle works best on matte surfaces.

Accurate measurements can only be achieved on flat and clean surfaces.
Measurements on soiled, scratched or otherwise contaminated test objects are useless, except to determine the degree of imperfection. Because it is unlikely that the gloss output is the same across the entire test surface, you should measure the gloss in a number of places and determine the standard deviation.

Note:
The aluminum particles in effect and metallic lacquers can produce deviant results.

The TQC Sheen glossmeter comes in two versions:

Article Number	Model name	Measuring angles
GL0010	TQC Sheen SoloGloss	60°
GL0030	TQC Sheen PolyGloss	20°/60°/85°

The TQC Sheen Glossmeter's memory is large enough to store a maximum of 2,000 measurements of three angles each in 10 batches. One batch can contain up to a maximum of 500 measurements, which can be transferred to a PC by connecting it to the glossmeter with a USB cable. You can also read measurements from the TQC Sheen Glossmeter's screen. The settings (Setup) can be protected by a password.

Glossmeters are internationally standardized instruments to ensure that measurements produced by any of the devices can be compared with each other.

6 GETTING STARTED

The glossmeter is ready for use as soon as you unpack it. All you have to do is set a few basic parameters such as language, date/time and scan angle. For more information on these settings, see chapter 3. These settings can be protected by a password.

The operating buttons
The instrument has 4 buttons:

The SCAN button is used to scan surfaces. You also use this button to switch on the glossmeter.

The Up arrow button enables you to navigate upward through the menu structure.

The Down arrow button enables you to navigate downward through the menu structure.

The OK button is used to confirm the selected menu option.

Starting the Glossmeter
Press the SCAN button. The TQC Sheen logo is displayed, followed by the main menu described in section 2.2.

The date and time are displayed at the bottom of every screen.

Note: The message "Calibration needed!" displays when the TQC Sheen Glossmeter needs calibrating. For more information see section 4.3.

Switching off the Glossmeter
Select ⏻ in the top left corner of the Main Menu to display the Power Off screen. Select Yes and press OK to switch off the device.

Note: By default, the Glossmeter powers off automatically if you do not press a device button within 5 minutes. See section 3.7 for instructions to change this setting.

Navigation
The menu can show four menu options at a time. If the menu has more than four options, this is indicated by the arrow icons ^ and v. Use the Up and Down buttons on the device to select the required option.

To go back to the previous screen or the previous menu, select ← in the top left corner of the display and press OK.

6.1 Where are which tasks performed?

This section describes the tasks you can perform with the TQC Sheen Glossmeter.
The tasks are grouped by function in the below tables.

6.1.1 Using the TQC Sheen Glossmeter

Task	Menu	Action	Option
Power on TQC Sheen Glossmeter		Press SCAN	
View TQC Sheen Glossmeter product information	Settings		Info
Scan		Press SCAN	
Power off TQC Sheen Glossmeter	Main menu		⏻ (Power Off)

6.1.2 Settings

Task	Menu	Action	Option
Set scan limit per batch	Log	Select batch	Scan Limits
Change settings	Main menu		Settings
Select scan angle	Scan Setup		Geometry
Set scan limits	Scan Setup		Scan Limits
Set date and time	Settings		Date/Time
Set language	Settings		Language
Time interval before the Glossmeter switches off automatically	Settings		Auto Power Off
Save measurements	Main menu		Log
Login	Scan Setup menu or Settings menu		Login
Activate, deactivate or change	Settings		Password
Change Volume	Settings		Volume
Change display brightness	Settings		Display

6.1.3 Save/clear data

Task	Menu	Action	Option
Clear data in a batch	Log	Select batch	Clear Batch Data
Clear memory	Settings		Clear Memory
Clear batch names	Clear Memory		Clear Batch Names
Save data to a batch	Log	Select batch	Press SCAN button
View saved measurements	Log	Select batch	Statistics

6.1.4 Calibrate

Task	Menu	Action	Option
Calibrate	Calibrate		Calibrate
Adjust calibration values	Calibrate		Calibration Values

6.2 The Main Menu

When TQC Sheen Glossmeter is powered on, the logo displays, followed by the Main Menu shown in Figure 2-1.

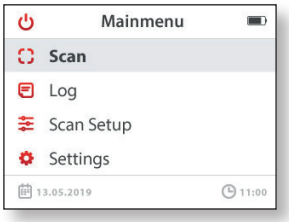


Figure 2-1 Main Menu with the Scan option selected

The following submenus are available:

- Scan
- Log
- Scan Setup
- Settings

In addition, you can select ⏻ to display the Power Off screen.

Use the arrow buttons ▲ ▼ to select the function you want to use. Press OK to activate the selected function or to access a submenu. Note: The selected option is displayed in bold type on a grey bar (see Figure 2.1).

6.2.1 Scan
Select the Scan (Measure) option to start scanning. For more information, see chapter 5.

6.2.2 Log
Select Log to save measurements in different batches. For more information, see chapter 6.

6.2.2 Scan Setup
Select Scan Setup to change some of the Glossmeter's scan settings. For more information, see chapter 4. If a password has been set (see section 3.1), you need to enter the password before you can change the settings.

6.2.4 Settings
Select Settings to change the glossmeter's settings. For more information, see chapter 3. If a password has been set (see section 3.1), you need to enter the password in the Settings menu before you can change the settings.

6.2.5 Power off
Select ⏻ at the top of the menu to display the Power Off screen. Select Yes and press OK to switch off the Glossmeter manually.

7 SETTINGS

You can change several basic settings in the Settings menu.

Note: It is possible to protect the Settings menu with a password. If password protection is active, you need to log in to change the settings, except for the options Volume and Display. For more information on password protection, see section 3.1.

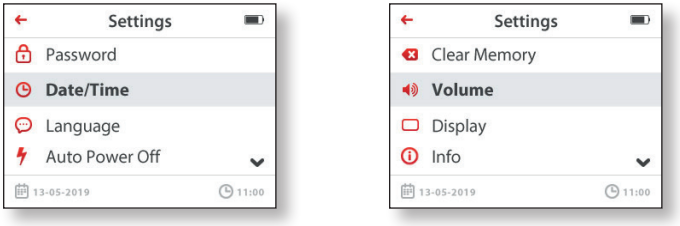


Figure 3-1 The Scan Setup menu

The Settings menu contains the following options:

- Password/Login
- Date/time
- Language
- Auto Power off
- Clear memory
- Volume
- Display
- Info

These options are described below.

7.1 Password/Login

Use this menu option to protect the Scan Setup and Settings menus with a password. If password protection is active, the Login option is displayed, and you must enter the password before the menu is displayed. The password always consists of four digits.

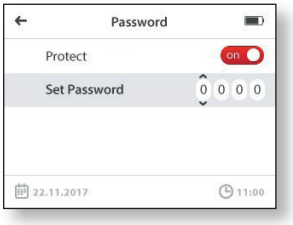


Figure 3-2 The Password screen

Activate the password

1. Select Settings in the Main Menu and press OK.
2. Select Password and press OK. The Password menu displays with the setting "Off".
3. Select Password and press OK. The Password On screen displays.
4. Select Yes and press OK to activate or deactivate the password.
   To go back without activating the password, select No and press OK.

Deactivate the password

1. Select Settings in the Main Menu and press OK.
2. Select Password and press OK. The Password menu displays with the setting "On".
3. Select Password and press OK. The setting changes to "Off".

Change password

1. Select Settings in the Main Menu and press OK.
2. Select Set Password and press OK. The first digit of the previously defined four-digit password is selected (the default value is 0000).
3. Use the arrow buttons to change the digit and press OK. The second digit is now selected.
4. Repeat step 3 for the other digits. You will be asked if you want to save the password after you have entered the last digit.
5. Select Yes to save the password and press OK.
   To go back without changing the password, select NO and press OK.

Note: When the password is activated, you must log in (see below) before you can change the settings.

Login

1. Select the Login option and press OK. The Login screen displays.
2. Select Password and press OK. The first position of the four-digit password is selected.
3. Use the arrow buttons to change the digit and press OK. The second position is now selected.
4. Repeat step 3 for the remaining digits.
   The menu you selected earlier (either Scan Setup or Settings) is displayed. You can now make the required changes.

7.2 Date/Time

Use this option to set the date and time and select corresponding formats. The date and time are always displayed at the bottom of the screen.

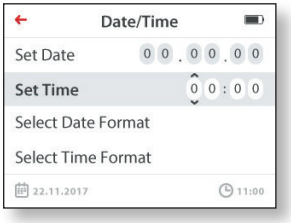


Figure 3-3 The Date/Time screen

Set Date

1. Select Settings in the Main Menu and press OK.
2. Select Date/Time and press OK.
3. Select Set Date and press OK. The year is selected.
4. Use the arrow buttons to change the year and press OK. The month is now selected.
5. Repeat step 4 to set the month and day.

Set Time

1. Select Settings in the Main Menu and press OK.
2. Select Date/Time and press OK.
3. Select Set Time and press OK. The hour is selected.
4. Use the arrow buttons to change the hour and press OK. The minutes are now selected.
5. Use the arrow buttons to set the minutes and press OK.

Select Date format

1. Select Settings in the Main Menu and press OK.
2. Select Date/Time and press OK.
3. Select Date Format and press OK.
4. Use the arrow buttons to select the right format and press OK.

Select Time format

1. Select Settings in the Main Menu and press OK.
2. Select Date/Time and press OK.
3. Select Time Format and press OK.
4. Use the arrow buttons to select the right format and press OK.

7.3 Language

The menu option enables you to choose the language you want to display the device's menus in.

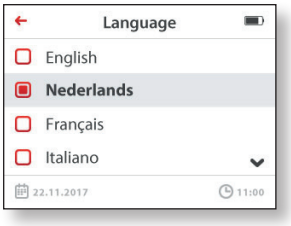


Figure 3-4 The Language screen

You can choose from English, German, Dutch, French, Italian and Spanish.

1. Select Settings in the Main Menu and press OK. The available languages are displayed.
2. Select the required language and press OK. The Settings Menu displays again.

7.4 Auto Power Off (battery)

The Auto Power Off option enables you to determine how long it takes before the TQC Sheen Glossmeter powers itself off after a button was last pressed. The default time is 5 minutes.

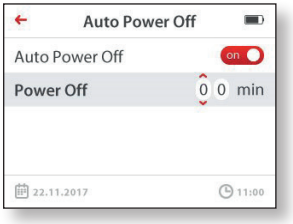


Figure 3-5 The Auto Power Off screen

Activate/Deactivate Auto Power Off

1. Select Settings in the Main Menu and press OK.
2. Select Auto Power Off and press OK. The Auto Power Off menu displays with the current setting.
3. Select Auto Power Off and press OK. The status changes to "On" or "Off", depending on the current setting.

Set Power Off time

1. Select Settings in the Main Menu and press OK.
2. Select Power Off and press OK. The minutes are selected.
3. Use the arrow buttons to select the right format and press OK.

7.5 Clear memory

Use the Clear Memory menu option to clear saved data. You have the option of clearing data in a specific batch, of clearing the names of batches or of clearing all of the data stored in memory.

Note: Deleted data cannot be retrieved; data is deleted permanently.

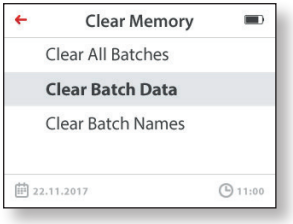


Figure 3-6 Clear Memory menu

The Clear Memory menu has three options:

- Clear All Batches
- Clear Batch Data
- Clear Batch names

These options are described below.

Clear all batches

1. Select Settings in the Main Menu and press OK.
2. Select Clear All Batches and press OK. The confirmation screen displays.
3. Select Yes and press OK to clear all batches.
   To go back to the Clear Memory menu without clearing all batches, select No and press OK.

Clear data in one batch

1. Select Settings in the Main Menu and press OK.
2. Select Clear Batch Data and press OK. The confirmation screen displays.
3. Select Yes and press OK to clear the batch.
   To go back without clearing the batch, select No and press OK.

Clear batch names

Use this option to clear the current batch names and replace them with the default names.

1. Select Settings in the Main Menu and press OK.
2. Select Clear Batch Names and press OK. The confirmation screen displays.
3. Select Yes and press OK to clear the batch names.
   To go back without clearing the batch names, select No and press OK.

7.6 Volume

Use this option to set the device volume.

- Select Settings in the Main Menu and press OK.
- Select Volume and press OK.
- Select the volume bar and press OK.
- Use the arrow buttons to increase or lower the volume and press OK.

7.7 Display

Use this option to set the display brightness.

1. Select Settings in the Main Menu and press OK.
2. Select Display and press OK.
3. Select the brightness bar and press OK.
4. Use the arrow buttons to increase or lower the display brightness and press OK.

7.8 Device info

This option displays the serial number and various version numbers for the device.

8 SCAN SETUP

You can change the scan settings for the device in the Scan Setup menu.

Note: It is possible to protect the Scan Setup menu with a password. If password protection is active, you need to log in to change the scan settings. For more information on password protection, see section 3.1.

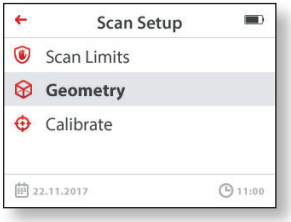


Figure 4-1 The Scan Setup menu with the Geometry option selected

The Scan Setup menu contains the following options:

- Scan Limits
- Geometry
- Calibrate

These options are described below.

8.1 Scan Limits

You can set scan limits for measurements that need to fall within a certain range. Scan limits can be activated and deactivated. The scan limits are inactive by default and the values are set to 0 (minimum) and 2,000 (maximum).

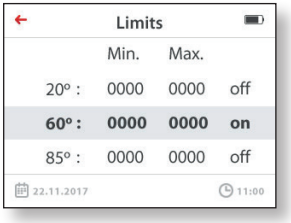


Figure 4-2 The Limits screen (scanning ranges)

Activate/deactivate scan limits

1. Select Scan Setup in the Main Menu and press OK.
2. Select Scan Limits and press OK. The scan angles, the scan limits, and their status display.

3. Use the arrow buttons to select the scan angle for which you want to set a scan limit range and press OK. The corresponding settings display.
4. Select Scan Limits and press OK. The status changes to "On" or "Off", depending on the current setting.

Set scan limit range

1. Select Scan Setup in the Main Menu and press OK.
2. Select Scan Limits and press OK. The scan angles, the scan limits, and their status display.
3. Use the arrow buttons to select the scan angle for which you want to set a scan limit range and press OK. The corresponding settings display.
4. Use the arrow buttons to select Min. or Max. and press OK. The limit is now selected.
5. Use the arrow buttons to adjust the limit:
   - Press the arrow buttons briefly to increase or decrease the limit in steps of 1.
   - Keep the arrow buttons pressed down to increase or decrease the limit in steps of 10.
6. Once the correct limit has been reached, click OK.

If scan limits have been set for a scan angle (see section 6.2), the scan results displayed by the Glossmeter also show whether the measurements are within ✓ or outside ✓ the scan limits.

Scan limits are set for scanning without data logging but can also be set for batches. For more information see section 6.2.

8.2 Geometry

Use this menu option to select the scan angles for your measurements. Based on the version of the TQC Sheen Glossmeter you are using, you can choose one, two or three scan angles.

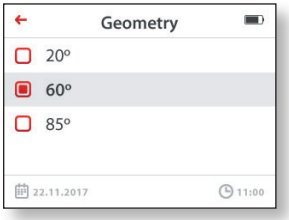


Figure 4-3 Geometry screen with 60° angle selected

Activate/deactivate scan angle

1. Select Scan Setup in the Main Menu and press OK.
2. Select Geometry and press OK. The available scan angles display.
3. Use the arrow buttons to select the scan angle you want to activate or deactivate
4. Press OK to change the current status. The box to the right of the scan angle changes to either checked or unchecked, depending on the current status.

Note that different scan angles are used for different surfaces. The 60° angle is the reference angle and can be used for every surface, from matte to mirror finish. The 20° scan angle achieves the best results on high-gloss

surfaces (GU > 70 when measuring at a 70° angle). The 85° scan angle achieves the best results on matte surfaces (GU < 10 when measuring at a 60° angle).

8.3 Calibrate

Calibration determines the glossmeter's metrological characteristics. Calibration is performed by comparing the gloss values of black glass at the bottom of the calibration holder.

You should check the condition of the calibration holder and the optical lenses before calibrating the device. The calibration holder and the optical lenses must be clean and in pristine condition. Grease and dust can be removed with clean, dry air or the supplied cleaning cloth. The device cannot measure surfaces accurately if the lenses are permanently damaged. The TQC Sheen Glossmeter cannot be calibrated if the calibration holder is damaged.

Note: To prevent measurement deviations caused by a calibration error, the TQC Sheen Glossmeter must always be calibrated with the same holder.

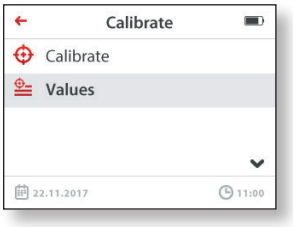


Figure 4-4 Calibrate menu

The Calibrate menu contains the following options:

- Calibrate
- Values

Calibrate the Glossmeter

1. Select Scan Setup in the Main Menu and press OK.
2. Select Calibrate and press OK. The Calibrate menu is displayed.
3. Select Calibrate and press OK. You are prompted to place the TQC Sheen Glossmeter in the calibration holder.
4. Use the Down arrow to select Start and press OK. The message "Calibration successful" displays.

If calibration is unsuccessful, the message "Calibration fail, please clean tile" displays. Clean the tile and try again.

View and change calibration values

You can view the calibration values and change them if necessary, for instance in case a different calibration holder is used:

1. Select Scan Setup in the Main Menu and press OK.
2. Select Calibrate and press OK. The Calibrate menu is displayed.
3. Select Values and press OK to display a list of calibration values for each scan angle.
4. Use the arrow buttons to select the scan angle for which you want to adjust the standard calibration values and press OK. The scan angle and the current standard value are displayed.
5. Use the Down arrow to select the scan angle and press OK.
6. Use the arrow buttons to adjust the calibration value:
    - Press the arrow buttons briefly to increase or decrease the value in steps of 0.1.
    - Keep the arrow buttons pressed down to increase or decrease the value in steps of 5.
7. Once the correct calibration value has been reached, click OK.

Note: The calibration values are printed at the bottom of the calibration holder next to the glass plate.

9 SCAN

You can use Scan menu to take measurements without logging the results.

Scan without logging

1. Select Scan in the Main Menu and press OK.
2. Press the SCAN button briefly to make a single measurement or hold the SCAN button down to take multiple measurements. The scan results for the activated scan angles are displayed.
   The device stops scanning as soon as the scan button is released.

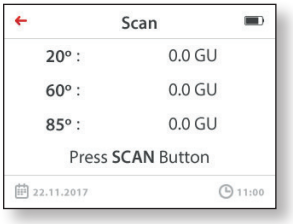


Figure 5-1 Scanning without logging

Note: Data scanned in this way is not stored in a batch. For more information on storing scanned data in batches, see chapter 6.

Scan angles

Depending on the model of the TQC Sheen Glossmeter you are using, you can take measurements for one, two or three different scan angles. Different scan angles are used for different surfaces. The 60° angle is the reference angle and can be used for every surface, from matte to mirror finish. The 20° scan angle achieves the best results on high-gloss surfaces, whereas the 85° scan angle works best on matte surfaces.

For information on activating and deactivating scan angles, see section 4.1. This section also provides information on how to set the scanning ranges.

10 LOG

Select Log to store measurement data in up to ten batches.

Figure 6-1 The Log screen

Select a batch

1. Select Log in the Main Menu and press OK.
   The available batches are displayed, including the number of measurements stored in each batch.
2. Use the arrow buttons to select a batch and press OK. The batch menu for the selected batch displays.

Figure 6-2 The batch menu

The batch menu offers the following options:

- Scan
- Scan Limits
- Statistics
- Rename
- Clear

These options are described below.

10.1 Scan

Use this option to take scan measurements and store them in the selected batch.

Scan with logging

1. Select Log in the batch menu and press OK. The available batches display.
2. Use the arrow buttons to select a batch. The batch menu displays.
3. Select Scan in the Main Menu and press OK.
4. Press the SCAN button briefly to make a single measurement or hold the SCAN button down to take multiple measurements. The scan results for the activated scan angles are displayed.
   The device stops scanning as soon as the scan button is released.

Each log record is assigned a log number that is displayed at the top of the screen next to the batch number/name. The log record contains the measurements for the activated scan angles. If scan limits have been set for a scan angle (see section 6.2), the Glossmeter also shows whether the measurements are within (✓) or outside (✓) the scan limits.

Immediately view measurement data in the batch

If the batch contains multiple measurement, you can use the two red arrows in the bottom-left corner to scroll through the measurements.

1. Use the arrow buttons ▲ ▼ to select one of the red arrows, depending on whether you want to scroll up or down in the batch.
2. Press the OK button to display the previous/next logged measurement in the batch.

10.2 Scan Limits

Use this option to set and activate scan limits for the selected batch.

See section 4.1 for more information on:

- Activating/deactivating scan limits
- Setting a scan limit range

10.3 Statistics

Select Statistics to evaluate the measurements in the selected batch. You can view the following statistics: minimum values, the maximum values, the averages, and the standard deviation for each scan angle.

1. Select Statistics in the batch menu and press OK. The minimum and maximum measurements display.
2. Press the Down button to select <11setup icon.jpg> in the bottom-left corner.
3. Press OK to display the averages and standard deviation for this batch.
4. Press OK again to switch back to the minimum and maximum measurements.

10.4 Rename

Use this option to change the name of a batch. A batch name has ten positions and can consist of letters and digits.

1. Select Rename from the batch menu and press OK. The batch name displays.
2. Press the Down arrow to select the batch name and press OK. The first position of the batch name is selected.
3. Use the arrow buttons to change the value and press OK. The second position is now selected.
4. Repeat step 3 to change the next positions. When you confirm the last position by pressing OK, the batch name displays without any position selected.
5. Press the UP arrow and press OK to display the batch menu again.

10.5 Clear

Use this option to clear all measurement data in the currently selected batch.

Warning: Deleted data cannot be retrieved; data is permanently deleted.

1. Select Clear from the batch menu and press OK. The Clear screen is displayed with the Yes option selected.
2. Press OK to clear all data. The batch menu is displayed.

11 SAFETY AND MAINTENANCE

11.1 General maintenance

Always store the glossmeter in its case when it is not in use.
Make sure the device is placed correctly in the case with the display facing the front.
Never use pressurized air to clean the meter.

Maintaining the screen
Handle the device with care and make sure that you do not accidentally scratch or break the LCD screen. Do not bang the TQC Sheen Glossmeter or expose it to extreme temperatures. Temperatures above 50°C will damage the display. This is a real danger when, for example, the glossmeter is left in the car.

Cleaning the TQC Sheen Glossmeter
We recommend cleaning the instrument with a soft, dry cloth such as that used to clean glasses. Do not use solvents! Clean the plastic housing only with isopropyl alcohol and a dry cloth.

Cables and connections
The TQC Sheen Glossmeter can be connected to the PC by a USB cable. Never force a connector that is difficult to insert in the connection. Make sure the connector and the connection fit together and that they are aligned and undamaged. The buttons on the TQC Sheen Glossmeter are disabled when the device is connected to a PC. The message USB ATTACHED Buttons disabled displays on the screen.

Heat, humidity, and dust
Keep the TQC Sheen Glossmeter away from extreme heat. Do not leave the device near a heater or in the car on the dashboard. Heat can damage the screen, the plastic housing, and the internal components.
Do not leave the device in dusty, humid, or wet places. Dust and humidity can damage the device and cause defects/failures.

11.2 Calibration

The TQC Sheen Glossmeter automatically emits a signal when it needs calibrating. For more information on calibration, see section 4.3.
The calibration value must be adjusted when the calibration holder is changed. The calibration values can be found next to the glass plate in the calibration holder. Because the value can differ for each calibration holder, it is important that a glossmeter is always calibrated on the same calibration holder. The calibration values can be adjusted when the calibration holder is replaced.

11.3 Batteries

The top-right corner of the Glossmeter screen displays a battery, indicating the remaining battery life. When the batteries almost need replacing, the battery symbol in the measurement/scan window starts blinking. We recommend using only high-quality batteries. Battery type: AA 1.5 V alkaline (not rechargeable). Insert the + side of the battery first and then press down the – side.

Check the time and date after replacing the batteries.

12 SPECIFICATIONS TQC SHEEN GLOSSMETER

Applied products:

GL0010	TQC Sheen SoloGloss 60˚
GL0030	TQC Sheen PolyGloss 20˚/60˚/85˚

Measurement:

Base dimensions:	45 x 130mm / 1.7 x 5.1 inch
Orifice size:	10 x 50mm / 0.4 x 2.0 inch
Spot size:	±5 x 5 mm / @ 20˚ / 0.2 x 0.2 inch
	±20 x 9 mm / @ 60˚ / 0.8 x 0.35 inch
	±40 x 9mm / @ 85˚ / 1.5 x 0.35 inch
Measurement speed:	70 measurements per minute at 3 angles
Simultaneous measurement:	3 geometries
Power saver option:	User selectable
Units:	Gloss Units (GU)
Resolutions:	0.1 GU (0-100GU)
	1 GU (>100GU)

Measuring angle characteristics:

	20˚	60˚	85˚
Range	0-2000 GU	0-1000 GU	0-160 GU
Repeatability r *	0,4 GU	0,2 GU	0,2 GU
Reproducibility R *	1,69 GU	1,58 GU	1,88 GU
Bias	1,2 GU	0,6 GU	1,6 GU

* According to ISO 2813 (range 0-100 GU)

Operational:

Calibration standard:	Integrated tile in dust cover
Display:	LCD display
Batches:	Max. 10
Readings per batch:	10.000, not dependent on number of angles
Readings max.	2000
Scan function:	Yes
Statistics:	Min. / Max. / Avg. / Std.dev
Security:	Password protection
Software:	TQC Sheen Ideal Finish Analysis

13 MENU STRUCTURE

- Start menu
  - Scan
  - Log
  - Scan Setup
  - Settings
  - Power off

- Scan menu
  - Scan
  - Back

- Log menu
  - Log
    - Batch [1-10]
      - Scan
      - Scan Limits
      - Statistics
      - Rename
      - Clear

- Scan Setup menu
  - Scan Limits
  - Geometry
  - Calibrate

- Settings menu
  - Password
  - Date/Time
  - Language
  - Auto Power Off
  - Clear Memory
  - Volume
  - Display
  - Info