TQC

Vision on quality
www.tqc.eu

PROFESSIONAL GLOSS METERS

FOR INDUSTRY AND LABORATORY

when surface appearance and consistency are crucial

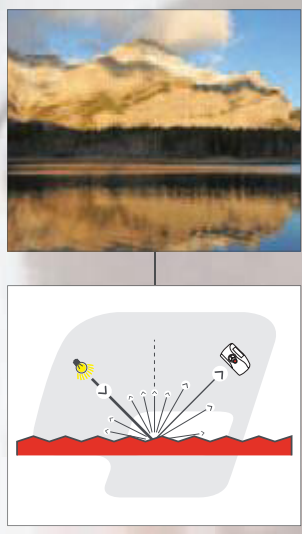
Made in

TQC GLOSS METERS

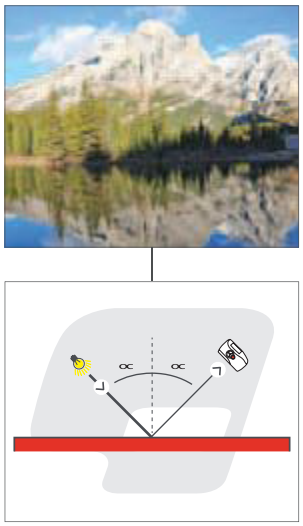
A NEW LEVEL OF CONFIDENCE

In an economy where production efficiency is key there is no room for errors. Quality has to be perfect as consumers tend to be more demanding than ever and will accept nothing less than perfection. Production is moving all over the planet. Traditional high performance products are now often manufactured in less traditional countries in order to retain competitive production costs.
To safeguard the quality "cutting edge" inspection instruments are crucial to maintain consumer confidence.

The TQC Gloss meter allows the user to measure fast and simple accurate gloss levels on any flat surface. Whether it be paper, paint, plastic, wood or any other material. No special training or skills are required. Just place the gauge, press the scan button and read the values. Template options can also provide the flexibility for use with curved surfaces or small test areas.



Diffusely scattered

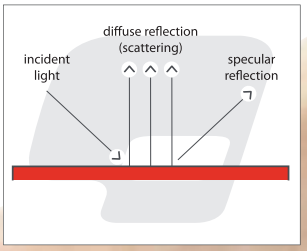


Directly reflected

GLOSS

The visual perception of a surface is strongly influenced by the proportion of light with specular reflection from that surface. As an inspection criterion it is equally as important as colour.
The optical properties of gloss analysis depend on a range of variables. Gloss itself is based on the interaction / reflection of light and the physical characteristics of a surface.

In definition gloss is a measure of the proportion of light which has a specular reflection from the surface. The variables that affect gloss are the refractive index of the material, the angle of incident light and the surface topography (structure / smoothness / roughness)
Materials with smooth surfaces appear glossy, while rough surfaces reflect no or little specular light and therefore appear matt or flat.



In daily life different levels of gloss are recognized. Without knowing specific numerical values we define surfaces as glossy or shiny, semi-glossy, satin or matt (flat, dull). By using a gloss meter you are able to provide numerical data to back up visual perception.

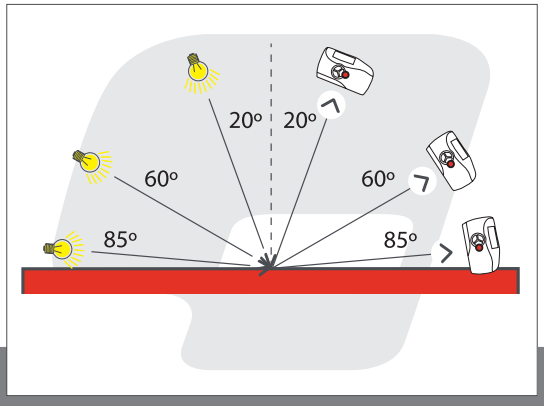
THE RANGE

TQC SOLOGloss®
The 60° singe-angle instrument of the TQC Gloss meter range. Preferred instrument for measurements in the semi-gloss range. Suitable for most applications. Light source and detector are positioned under an angle of 60° of the surface to be measured.

TQC DUOGloss®
The TQC Duo Gloss meter is a versatile instrument that combines the 20° and 60° angle into one gloss meter. The 20° angle is ideal for measurements in the high-gloss area while the 60° covers the semi-gloss range.

TQC POLYGloss®
The top of the TQC Gloss meter range is the triple angle instrument PolyGloss. Besides a 20° and 60° measuring angle the TQC PolyGloss is also equipped with a 85° measuring angle thus covering the entire gloss-spectrum. The 85° is for low gloss levels (high diffuse reflection) or mat surfaces.*

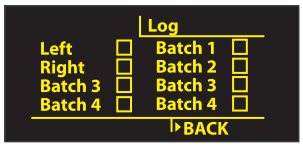
(Depending on the model the instrument can be set to measure and display just one or several measurement angles simultaneously)
**The TQC Polygloss will be available Q1/2013*



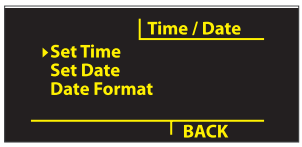
GEOMETRY | different measuring angles for different applications
It is common practice to use a 60° angle gloss meter for almost every application. Most specifications specify a gloss level measured at 60° which often deviates from international standards.

ISO 2813 advises to use the following geometries to obtain improved differentiation on high-gloss or low-gloss surfaces:
• 20° measuring angle for high-gloss surfaces where a 60° gloss meter typically indicates values higher than 70 GU.

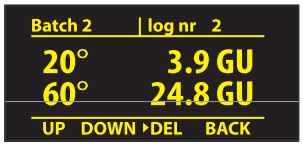
THE FEATURES



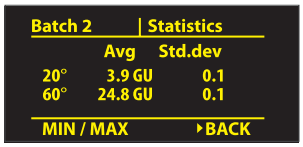
Data logging All TQC Gloss meters are equipped with an extensive memory of max. 2000 measurements which can be organised in 8 different batches. The name of each batch can be programmed into the instrument in order to allow data retrieval at a later stage.



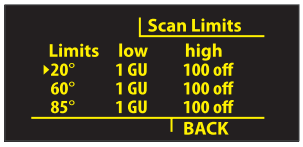
Date Time stamp The internal clock and calendar provides each stored measurement with a date/time stamp. A choice of four different date formats is available.



Data handling Via a "plug and play" USB interface the measuring data can be downloaded to your PC. Scrolling through a batch with the Up and Down function shows individual data directly on the instrument's display. It is possible to delete individual false measurements directly from the instrument's database. Batches can be cleared one by one or the entire memory can be emptied in one action. See also the section TQC Ideal Finish Analysis Software.



Statistics Of each batch statistical data can be observed on the Gloss meter's display. The instrument shows minimum- and maximum values, average and standard deviation.



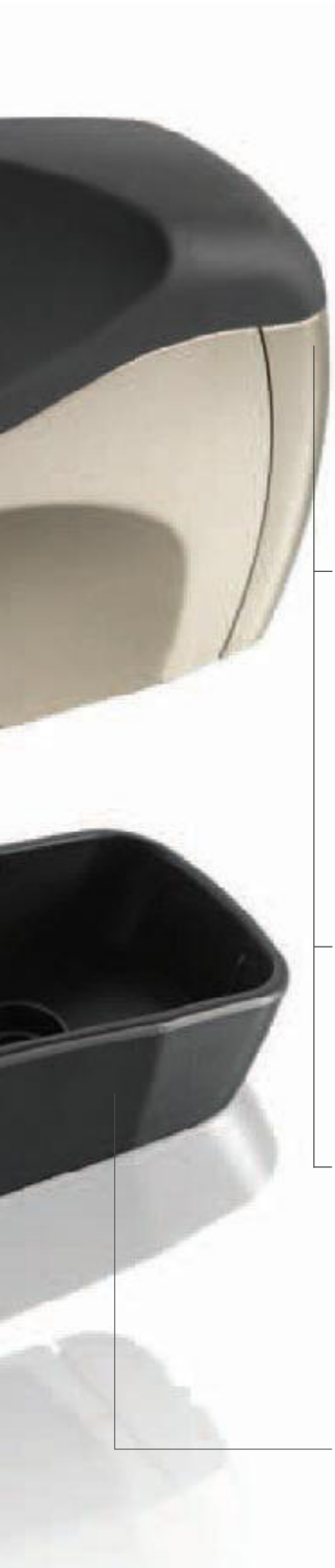
Limits / Thresholds When measurements have a specific specification to meet, it is possible to set High and Low limits. An audible and visual alarm indicates when measurements are off limits operating as a pass/fail option. Depending on the type of TQC Gloss meter individual limits can be set

MECHANICS

Optical stability The optical components are mounted on an extremely stable chassis made from a combination of precision milled aircraft-grade aluminium and a special injection moulded hi-tech plastic. The rock solid base assures measurements to be accurate under all circumstances and conditions.

USB-B Port
TQC Gloss meters are equipped with a USB-B port for quick data transfer

Light source TQC Gloss meters utilise LED (Light Emitting Diode) as light source to guarantee long term stability. Unlike tungsten light bulbs LED does not generate heat. Drifting measurements caused by temperature changes are therefore eliminated. Accuracy remains optimal for many



ERGONOMICS

OLED Display TQC Gloss meters are equipped with the latest OLED (Organic Light Emitting Display). This new type of display offers extremely high visibility and contrast at a range of viewing angles. The innovative OLED display is positioned at an angle of 35 degrees which ensures excellent readability in all conditions. When measuring on horizontal or vertical surfaces or any angle in between.

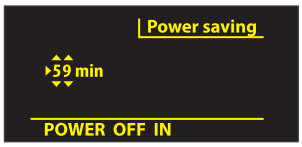
Operation Menu driven operation allows new users to benefit from all the features of the instrument without having to refer to the user's manual. The intuitive structure guides the user through the different screens to change the settings of the instrument.

Shape The case of the instrument is designed to comfort both right- and left handed users. The upper part is "soft touch" coated for ultimate grip and the wrist strap prevents accidental drops. The rubber operating buttons offer a pleasant feel and user friendly operation.

CALIBRATION

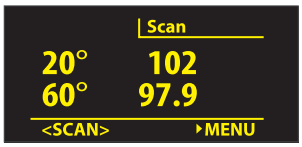
In production TQC Gloss meters are calibrated against a series of reference tiles certified by the German BAM (Bundesanstalt für Material-

THE FEATURES



Power saving The instrument utilises low power consuming LED light sources and a battery friendly OLED display. A full set of batteries has a 10.000 reading life expectancy. However, in order to get the maximum operational life from the batteries the instrument is equipped with an adjustable "auto power off" function which can be set by the user between 1 and 59 minutes. Power is provided by two standard AA-batteries.

Languages The instrument is designed for optimal user comfort. Use of a manual is hardly required due to the intuitive menu driven user interface . To make life even easier the TQC Gloss meter comes in a wide selection of languages. Standard languages are English, German, French, Spanish and Italian but the number of languages will grow over time. Check our website for the latest status.



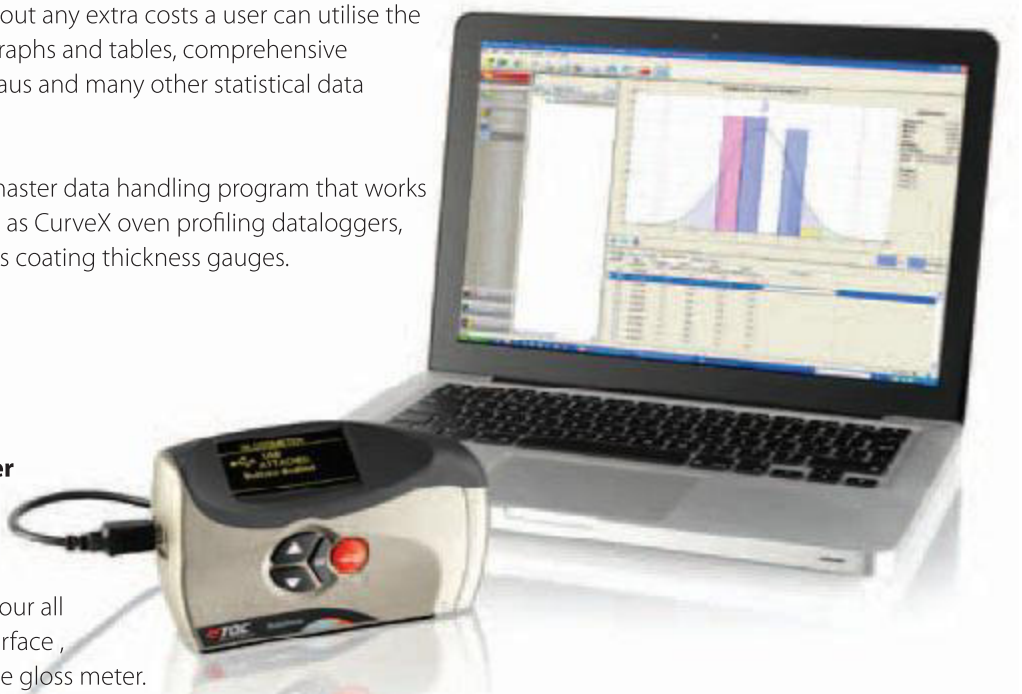
Scan mode Keeping the "Scan button" pressed down allows the gloss meter to measure continuously at a rate of approximately 70 readings per minute. If selected the readings will be stored in the instrument's memory.

Login Protection To prevent unwanted change of settings by unauthorised users certain functions can be protected with a Login Code. The protection can be activated or de-activated by choice. This code is user programmable. Instrument setup, limit changes, delete readings, or clear memory are all protected by the selected code.

IDEAL FINISH ANALYSIS SOFTWARE

TQC Gloss meters are supplied as standard with the powerful TQC IDEAL FINISH ANALYSIS evaluation and analysis software. Without any extra costs a user can utilise the software to create reports including graphs and tables, comprehensive statistics and SP-calculations. Trend, Gaus and many other statistical data sets are possible within the software.

TQC IDEAL FINISH ANALYSIS is TQC's master data handling program that works with an array of TQC instruments such as CurveX oven profiling dataloggers, DewCheck climate gauges and various coating thickness gauges.



RESEARCH

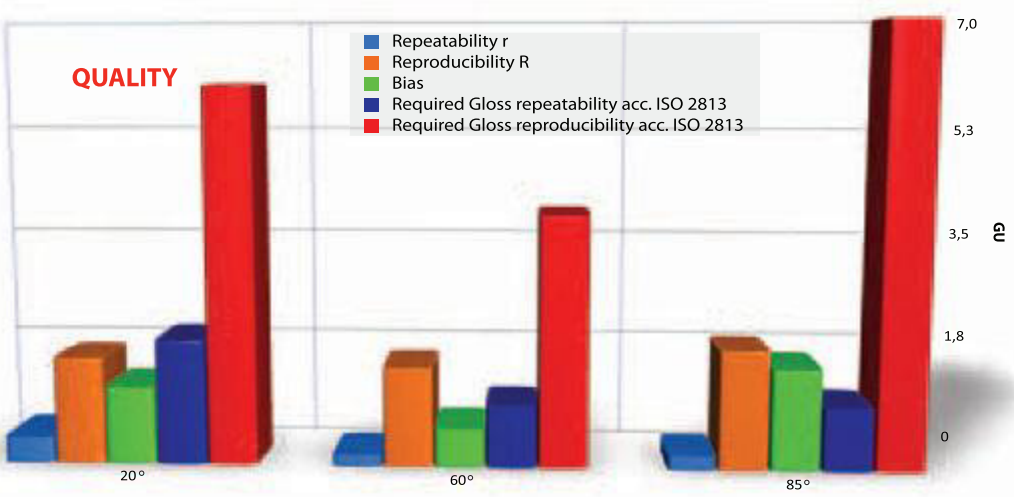
The science behind the Gloss meter
Gloss meter development started with an understanding of the basic principles of Gloss. Surface textures, translucency and colour all influence the visual perception of a surface , but also influence the fine optics of the gloss meter. Micro scale surface deformations cause scattering of light and divide it into specular and non-specular. This is the fine threshold where the TQC Gloss meter is able to determine the gloss at the highest accuracy level.

Sending and receiving
To determine the best light source and detector setup components from suppliers all over the world have been tested. Spectral sensitivity, stability and linearity all proved to be exceptionally stable using the TQC Gloss meter.

Standardization
In order to guarantee the TQC Gloss meter to be one of the most stabile meters available and fullfills all the demands of the ASTM, DIN and ISO standards. TQC joined all of the standardization bodies and are actively involved in testing criteria relating to the standards. Ensuring the highest level of conformity .

Precision engineering
In order to get the best stability the TQC Gloss meter's unique double frame system has been engineered with the highest precision. Carefully controlling the interior of the light patch helps to give the TQC Gloss meter robust and stabile structure.

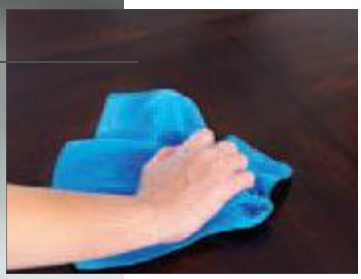
Ten thousands of readings
To assess the quality of the TQC Gloss meter we took thousands of readings on certified substrates to test stability, reliability and durability. With or without shock testing the TQC Gloss meter proved



WHERE TO USE A TQC GLOSS METER...

TQC Gloss meters are designed to work both in production and lab environments. Its compact size and ergonomic shape make it ideal for all day use on a production line. However the high level of accuracy equals or exceeds most bench gloss meters making it a perfect fit for high demand laboratory applications.

Flooring



Yacht and boat builders

Paint and coatings

Automotive

Furniture

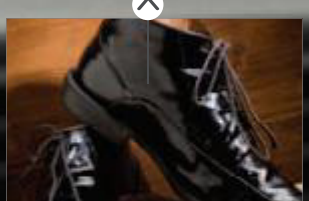
Militairy goods

Finishing

And many more...

Research and development

Leather



Plastics

SPECIFICATIONS

APPLIED PRODUCTS:

GL0010	TQC SoloGloss 60˚
GL0020	TQC DuoGloss 20˚/60˚
GL0030	TQC PolyGloss 20˚/60˚/85˚

DIMENSIONS:

Size:	90 x 140 x 45 mm (h x w x d)
	3,5 x 5,6 x 1,7 " (h x w x d)
Weight:	398 g / 13,7 oz

OPERATIONAL:

Calibration standard:	Integrated tile in dust cover
Display:	High Contrast OLED display
Light source:	Extreme low drift LED light source
Power source:	2x AA alkaline batteries
Batches:	max 8
Readings per batch:	max 500, non-dependant 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:	TQC Ideal Finish Analysis

MEASUREMENT:

Base dimensions:	45 x 130mm / 1,7x5,1"
Orifice size:	10 x 50mm / 0,4x2,0"
Spot size:	±5 x 5 mm / 0,2x0,2" @ 20˚
	±20 x 9 mm / 0,8x0,35" @ 60˚
	±40 x 9mm / 1,5x0,35" @ 85˚
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)
	1GU (>100GU)

	20˚	60˚	85˚
Range	0-2000 GU	0-2000 GU	0-2000 GU
Repeatability r*	0,4 GU	0,2 GU	0,2 GU
Reproducibility R*	1,7 GU	1,6 GU	1,9 GU
Bias*	1,2 GU	0,6 GU	1,6 GU

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

WARRANTY:

TQC will grant a warranty for a period of 12 months for TQC Gloss meter and 12 months for all related equipment from the date of delivery in respect of any evidence of faulty workmanship and materials. TQC will extend the warranty for TQC Gloss meter to a period of 24 months from the date of delivery if TQC Gloss meter is licensed via the TQC Ideal Finish Analysis software.

STANDARDS:

ISO 2813; ASTM D523; ASTM D2457; ASTM C584;
AS 1580 (602.2); BS 3900 D5; DIN 67530; JIS Z 8741;
ISO 7668; MFT 30064 (exception 45˚ angle)

SCOPE OF SUPPLY:

Each TQC Gloss meter comes with the following items:

- 2 AA type batteries
- Plastic protective case
- Screwdriver
- USB stick with TQC Ideal Finish Analysis software
- Micro fibre cleaning towel
- USB cable
- Calibration certificate

Made in the Netherlands

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