



Connectivity



TESA
TECHNOLOGY

Towards a connected company...

Thanks to advancements in the field of information technology, robotics, and more, digital technologies are being increasingly utilized in workshops around the world. Even though some companies continue to employ the traditional pen-and-paper method to ensure traceability of the parts they produce, the boundary between the physical and digital worlds is gradually fading.

In the current context of Industry 4.0, competitiveness and flexibility go hand in hand with the digitalization of businesses. Productivity gains, cost reduction, and product and process improvement are generally discussed. Consequently, real-time monitoring and control of one's production become relatively important.

In this context, instrument connectivity becomes an indispensable feature. Connecting measurement instruments to a computer opens up powerful possibilities (reports, statistical analysis, etc.) and clearly fulfills data management expectations for both small enterprises and larger companies.



A wide range of possibilities

In this chapter, you will find several options for connecting TESA instruments to a peripheral device and receiving the data for further processing. To achieve this, TESA not only offers various types of connections between the measuring instrument and the computer, but also powerful and comprehensive data management software solutions.



Connectivity

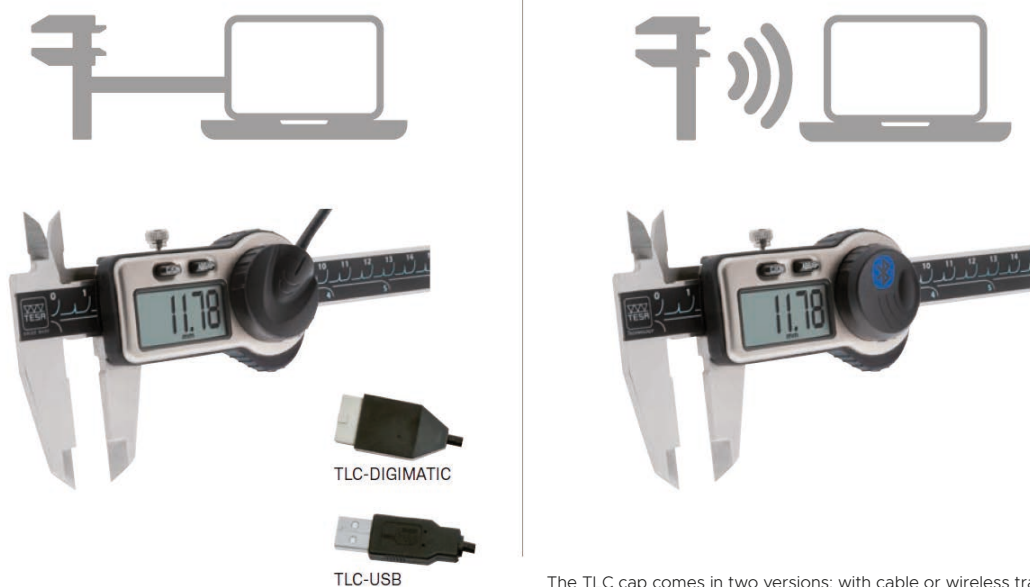
Send your data to a free software, DATA-VIEWER

Data acquisition has never been easier! TESA digital instruments with Bluetooth® and USB connection are automatically recognized by the software, and the measured values are displayed in a user-friendly environment. Once the data is loaded into the TESA DATA-VIEWER software, it can be exported to other software such as STAT-EXPRESS, Q-DAS, or Excel, and customized to fit your own format.

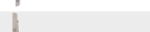
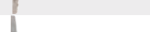


A appreciated modular system

With the flexibility provided by the TLC (TESA Link Connector) connector, the issue of data transmission is no longer a source of stress during the initial purchase of the instrument. Indeed, by externalizing the technology related to data management into this accessory, TESA enables updating its instruments at any time, whether for cable-based or wireless management.



The TLC cap comes in two versions: with cable or wireless transmission

Family	Model		Designation	Connector type
Calipers	Universal models		TWIN-CAL TWIN-CAL IP67	TLC
	Workshop models		TWIN-CAL IP67	TLC
	Workshop models with knife-edge internal jaws		TWIN-CAL IP67	TLC
	Depth models with short cut measuring face		TWIN-CAL IP67	TLC
	Depth models with fixed hook(s)		TWIN-CAL IP67	TLC
	Depth models with rotary stop plate		TWIN-CAL IP67	TLC
	Depth model with steel measuring tip		TWIN-CAL IP67	TLC
Micrometers	External models		MICROMASTER RS	Opto-RS232
	External model with fine inserts		MICROMASTER RS	Opto-RS232
	Internal models		IMICRO RS	Opto-RS232
Dial gauges			DIALTRONIC	Inductive USB
Display units	Portable display unit with 1 probe input		TWIN-T10	TLC
	Double display unit with 2 Heidenhain probe inputs		TWIN-T20	TLC, RS232
	Double display unit with 2 Heidenhain probe inputs		TWIN-T20 nano	TLC, RS232
Height gauges	1D manual		TESA-HITE MAGNA TESA-HITE	TLC
	2D manual		MICRO-HITE	TLC
	2D motorised		MICRO-HITE+M	TLC
Measuring station	2D motorised		μ-HITE	TLC
Clinometers			CLINOBEVEL 1	USB, RS-485
			CLINOBEVEL 3	USB, RS-485
Roughness gauges	Portable		RUGOSURF 20	Micro-USB
	Ultra-compact		TWIN-SURF	USB C
	Roughness and profile measurement		RUGOSURF 90G	Micro-USB

Connectivity

TLC-BLE emitter

- CONNECTOR
 - Guarantees an IP67 protection rating at all times
- MEASUREMENT
 - Allows users to connect TESA instruments to a computer
 - Paired with the free TESA DATA-VIEWER software, data is easily collected, analyzed, and stored



Range	12 m (depending on environment)
Degree of protection	IP67
Weight	7,2 g
Power supply	CR2032 button battery
Operating temperature	10 ÷ 40 °C
Countries/regions certified for Bluetooth® option use	DE, AT, BE, BG, CA, CN, CY, KR, HR, DK, ES, EE, US, FI, FR, GR, HU, IN, IE, IS, IT, JP, LV, LI, LT, LU, MT, NL, NO, PL, PT, CZ, RO, GB, SK, SI, SE, CH, TW, TR

Article number	Designation
04760183	TLC-BLE Bluetooth® emitter + USB dongle receiver + 1,5 m extension cable set
04760184	TLC-BLE Bluetooth® emitter
04760185	USB receiver + 1,5 m extension cable

TLC-BLE adapters

- **CONNECTOR**
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04760178



04760179

Countries/regions certified for Bluetooth® option use

DE, AT, BE, BG, CA, CN, CY, KR, HR, DK, ES, EE, US, FI, FR, GR, HU, IN, IE, IS, IT, JP, LV, LI, LT, LU, MT, NL, NO, PL, PT, CZ, RO, GB, SK, SI, SE, CH, TW, TR

Article number	Designation
04760178	Opto-RS232 to TLC adapter
04760179	RS232 to TLC adapter

TLC connection

- **CONNECTOR**
 - Guarantees an IP67 protection rating at all times
- **MEASUREMENT**
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04760181



04760182

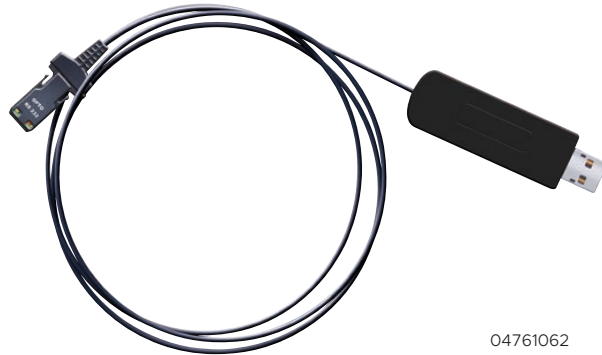
Degree of protection

IP67

Article number	Designation	Length m	Connector (instrument side)	Connector (PC or system side)
04760181	TLC-USB cable	2	TLC	USB
04760182	TLC-DIGIMATIC cable	2	TLC	Ansley 10p/f

Cable connection

Opto connection



04761062

Article number	Designation	Length m	Connector (instrument side)	Connector (PC or system side)
04761062	Opto-RS232 to USB cable, duplex, 2 m	2	Opto-RS232	USB
04761049	Opto-RS232 to Sub-D 9p/f cable, duplex, 2 m	2	Opto-RS232	Sub-D 9p/f
04761027	Opto-RS232 cable, without connector, 2 m	2	Opto-RS232	Without connector

USB connection



Article number	Designation	Length m	Connector (instrument side)	Connector (PC or system side)
04760099	USB to micro-USB cable	2	Micro-USB	USB
06960062	USB cable, RUGOSOFT 90G to computer	1,8		USB
04760151	USB A to USB B cable, 1,8 m	1,8	USB A	USB B
04760152	USB A to USB C cable, 1 m	1	USB C	USB A
04760160	Cable inductive to USB, 3 m	3	Inductive	USB
04760161	Cable power to USB, 3 m	3	Power	USB
04760162	Cable power (90 degrees) to USB, 3 m	3	Power (90 degrees)	USB

Sub-D connection



04761052

Article number	Designation	Length m	Connector (instrument side)	Connector (PC or system side)
04761063	Sub-D 9p/m to USB cable, 2 m	2	Sub-D 9p/m	USB
04761052	Sub-D 9p/f to Sub-D 9p/m cable, 2 m	2	Sub-D 9p/m	Sub-D 9p/f
04761073	Sub-D 9p/m to USB adapter	0,1	Sub-D 9p/m	USB
03969007	Sub-D 9p/f to Sub-D 9p/f cable, 3 m	3	Sub-D 9p/f	Sub-D 9p/f

Batteries, power supplies and cables

Power supplies and cables



04761054

Article number	Designation	Length m
06960046	Power supply 100 ÷ 240 V, 50 ÷ 60 Hz, 12 V, 400 ÷ 600 mAh for RUGOSURF 20	
00760258	Adapter + 14 V charger (cables not included)	
04761054	Power supply 100 ÷ 240 Vac, 50 ÷ 60 Hz, 6,6 Vdc, 750 mAh	
04760153	M4P-3 power supply + EU, UK, US, and CH adapters	
04761055	Power cable, UE	1,8
04761056	Power cable, US	1,8
04761072	Power cable, UK, 1,8 m	1,8
04460016	TWIN-T20 power supply + UE, UK, US and CH cables	1,2
02160038	Power supply 80 ÷ 240 Vac, 50 ÷ 60 Hz for TPS	

Batteries



00760256

Article number	Designation
00760256	Rechargeable battery block
06960063	Battery NiMH 8,4V, 170 mAh, format PP3

Printer for MICRO-HITE range

Together with instruments in the MICRO-HITE range as well as the TESA μ -HITE measuring station, data can be automatically and directly sent to a printer connected to the control panel.

As the printer is optional, it can be connected to an instrument in this range at any time of its use.



00760235

Article number	Designation
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00760235	USB printer
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Printer for TWIN-SURF roughness gauge



06960090

Article number	Designation
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06960090	Bluetooth® printer
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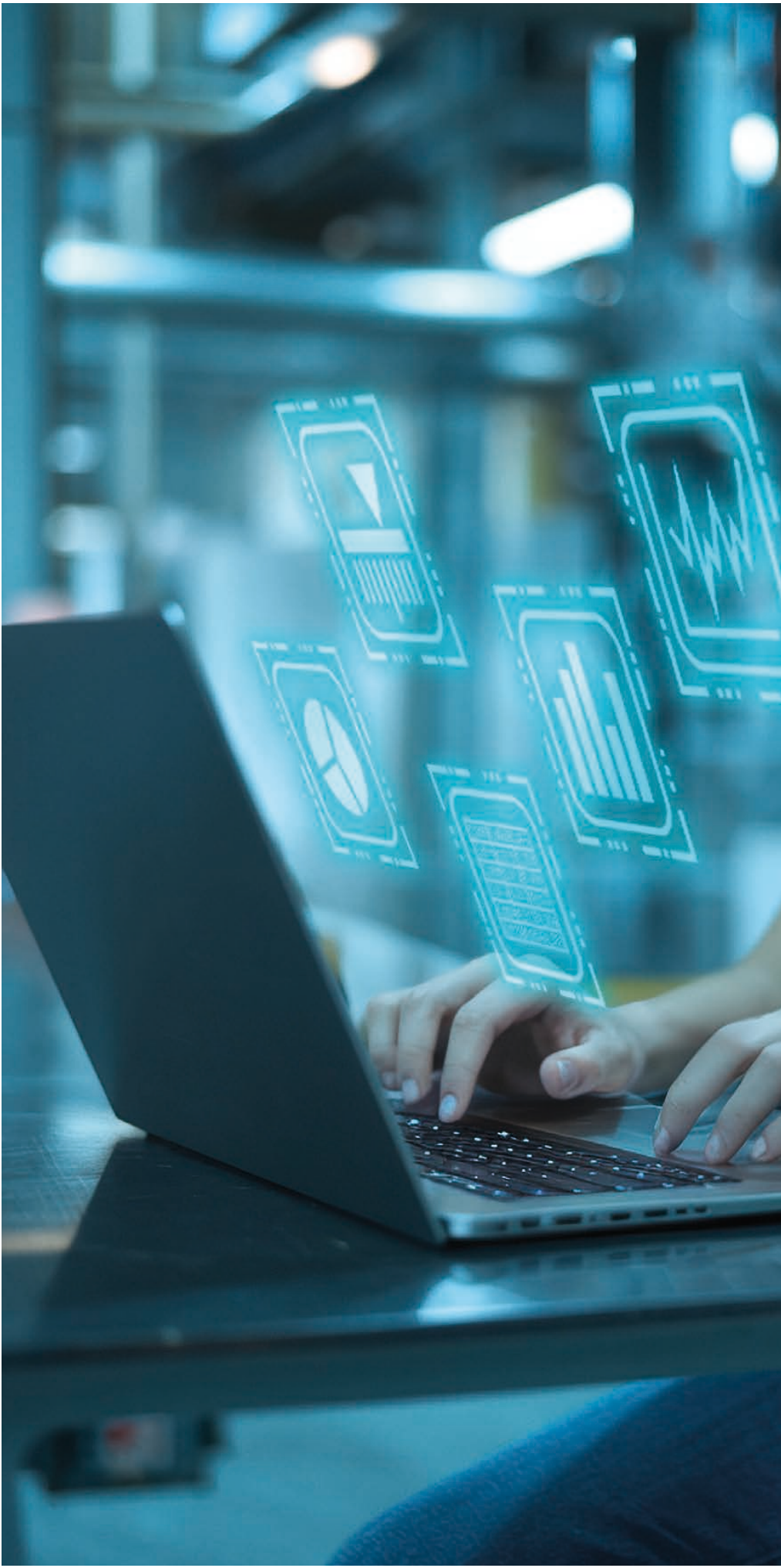
Thermal paper



00760250

Article number	Designation
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00760250	4x thermal paper, 58 mm, for TWIN-SURF and MICRO-HITE printers
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Software



TESA
TECHNOLOGY

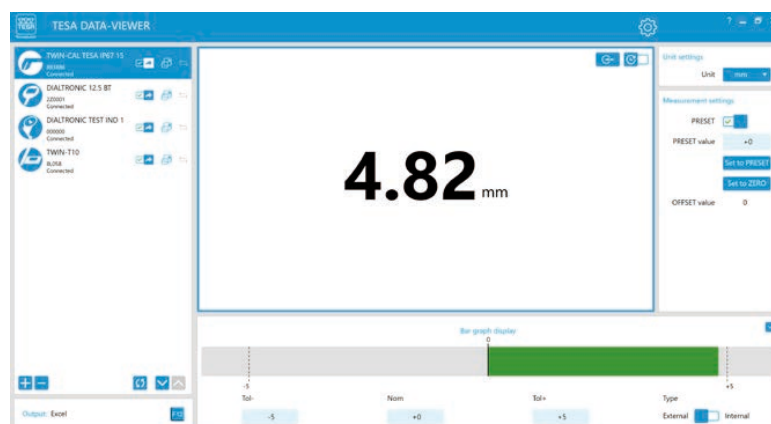
Traceability, one of the new industrial challenges

Industrial challenges no longer revolve solely around meeting delivery deadlines, reducing stocks, or optimizing productivity. Having accurate information about manufactured products is an essential step for industries. They must be able to track the manufactured product, ensure its quality, and guarantee its traceability throughout its lifecycle.



Retrieve data with ease

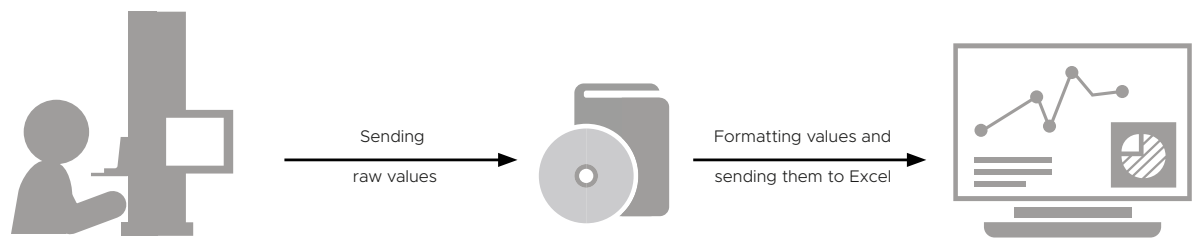
Most of the TESA instruments are compatible with the free TESA DATA-VIEWER software, allowing a quick and easy handling of all measurement data. The data is then automatically transferred to files in known formats such as *.xls, *.csv, or Q-DAS.



Software

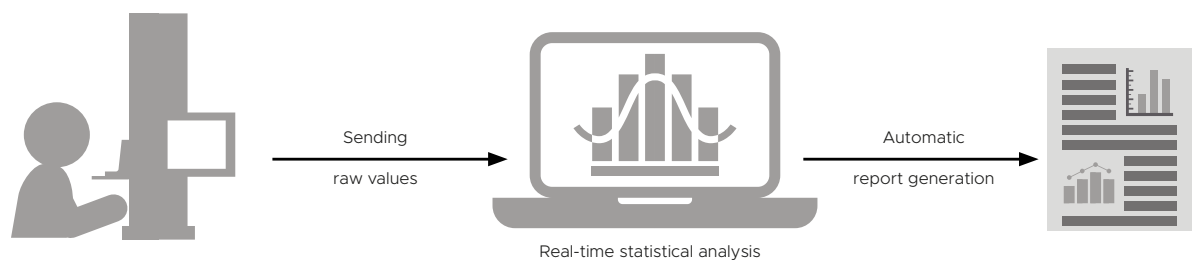
Fill out a report template in real time

With the TESA DATA-DIRECT software, one or several mechanical parts can be measured and the data can be automatically formatted in a previously prepared report template (for example Excel). Once the measurement has been recorded, the report is directly accessible.



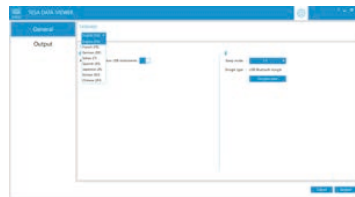
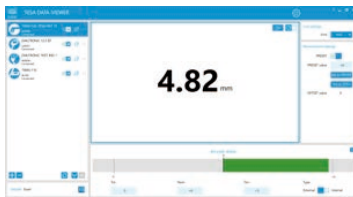
The quick and easy statistical software

The SPC (Statistical Process Control) TESA STAT-EXPRESS software is the way to calculate in real time all the important characteristics during statistical analyses. Quick to learn, it manages also automatically the measuring reports.



DATA-VIEWER

- AVAILABILITY
 - Software downloadable free of charge from the TESA website
- CONNECTIVITY
 - For receiving data via cable (USB)
 - For receiving data via Bluetooth®
 - Instruments automatically recognized and connected
 - Reception via USB dongle or integrated computer dongle (from Windows 10)
 - Possibility to connect up to 40 instruments simultaneously
 - Compatible with a USB foot pedal for sending values
- INTERFACE
 - Clear interface for easy handling without confusion
- DATA MANAGEMENT
 - Transmission of measured values from the measuring instrument or from DATA-VIEWER
 - Real-time export of results to EXCEL or Q-DAS software
 - Automatic creation of files in *.csv or *.txt formats
 - Data transmission format to an active field or a virtual port
- MEASUREMENT REPORT
 - Real-time filling of report templates created in external program (e.g. Excel)



Compatibility

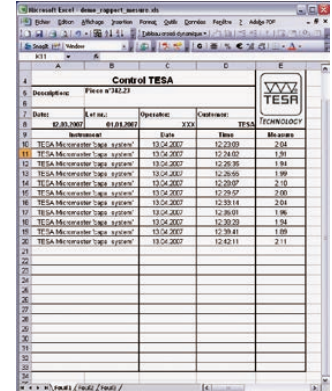
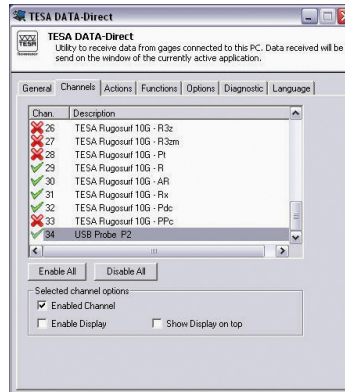
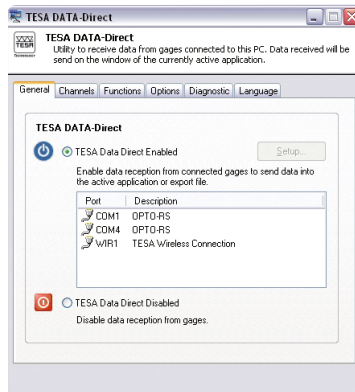
- Wired connection TLC-USB
- Bluetooth® connection TLC-BLE
- DIALTRONIC serie
- USB pedal
- All instruments with an opto-RS232 output using the 04760178 adapter
- All instruments with a Sub-D 9p-RS232 output using the 04760179 adapter

Article number	Designation
DATA-VIEWER	Free data acquisition software

Data processing software

DATA-DIRECT

- AVAILABILITY
 - Free limited version downloadable from the TESA website
- CONNECTIVITY
 - For data reception via cable (USB)
 - For data reception via Bluetooth® (through the use together with DATA-VIEWER)
 - Compatible with a USB foot pedal for sending values
- DATA MANAGEMENT
 - Transmission of measured values from the measuring instrument or from DATA-DIRECT
 - Real-time export of results to third-party processing software
 - Configurable data transmission format (Cells management)
 - Continuous transmission at a configurable regular interval (Data pooling)
 - Automatic creation of files in .csv format
- MEASUREMENT REPORT
 - Allows for real-time filling of report templates created in external program (e.g. Excel)



Compatibility

- All instruments connectable to DATA-VIEWER
- Customizable RS232 connection for all instruments on the market

Included in delivery

Installation file and user manual provided on a USB drive
 USB license key (dongle)
 Declaration of conformity

Article number

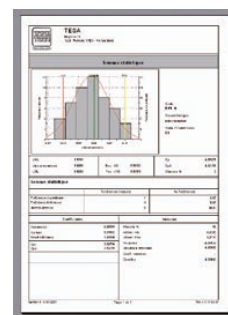
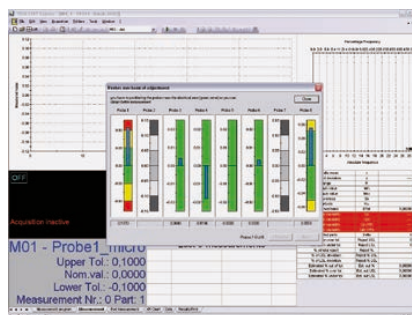
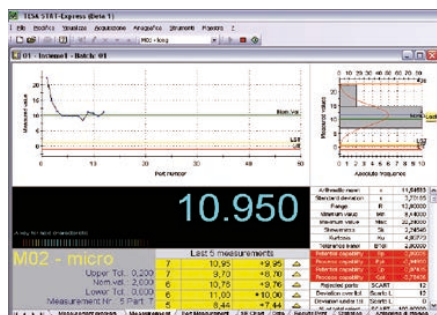
Designation

04981001

DATA-DIRECT software

STAT-EXPRESS

- AVAILABILITY
 - Free limited version downloadable from the TESA website
- CONNECTIVITY
 - For data reception via cable (USB)
 - For data reception via Bluetooth® (through the use together with DATA-VIEWER)
- MEASUREMENT
 - Measurements by part or by characteristic
 - Unlimited creation of measurement programs
 - Simultaneous acquisition of several measurement programs
 - PASS/FAIL classification on the display of the digital TWIN-CAL caliper
- DATA MANAGEMENT
 - Measured value is displayed in real time
 - Statistics calculation and XR control card in real time
 - Accesses protected by user level
 - Import/export of *.csv file
- MEASUREMENT REPORT
 - Report per measured characteristic or per measured part
 - Automatic creation of measurement protocols with photo and operational instruction
 - Complete report with statistics
 - Measurement report in *.pdf, *.html or other format



Compatibility	- All instruments connectable to DATA-VIEWER
	- Customizable RS232 connection for all instruments on the market
Included in delivery	Installation file and user manual provided on a USB flash drive
	USB license key (dongle)
	DATA-DIRECT software (included in STAT-EXPRESS)

Article number	Designation
04981002	STAT-EXPRESS software

Software for gauge block comparators

TESA UP

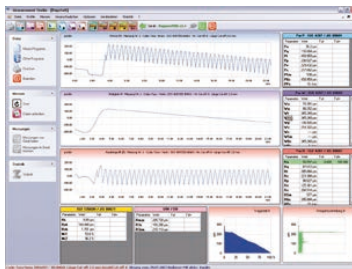
- RESULTS AND MEASUREMENT REPORTS
 - Customized measurement report templates
 - Real-time completion of measurement reports
 - Assignment of standard gauge blocks to their respective classes
 - Automatic sending of measurement reports via email
- FEATURES
 - Wide range of measurement methods
 - Selection of standard or custom quality classes
 - Customizable certificate templates
 - Automatic calculations and classifications based on inspection conditions
 - Client records and order management
 - Unlimited database
 - Data backup for gauge block sets
 - Automatic execution of all corrections (e.g., accounting for the actual dimension of reference standards and flattening due to the use of different types of materials (steel, carbide, ceramic), temperature compensation based on linear expansion coefficients)
 - Processing of metric and imperial values

Standard	ISO 3650
Units	mm / in
Software min. requirements	Windows 10 (32 or 64 bits) or later version
Hardware min. requirements	Processor: Intel core i3 or higher RAM minimum: 8 MB Hard disk: 500 GB
Compatibility	For any system upgrade to TESA UP 3.x please contact your local dealer to confirm the compatibility of TESA UP with your instrument.

Article number	Designation
05960042	TESA UP software, V3.x
05960043	TESA UP software, V3.x + computer

MEASUREMENT STUDIO

- COMPATIBILITY
 - For RUGOSURF 90G
- FUNCTIONS
 - Remote management of measurement start-up and calibration
 - Visualization of the measured parameters
 - Visualization of roughness profiles R, primary P and waviness W
 - Calculation of roughness parameters, including VDA parameters
 - Calculation of statistics from a set of measurements
 - Adjustable upper and lower tolerance for each parameter
 - Creation and storage of measurement programs (instrument settings and parameters to be measured)
 - Transferable measurement programs on the instrument
 - Measurement report with customizable header
 - 51 parameters available
- DATA MANAGEMENT
 - Connection to the instrument via USB
 - Import of saved measurements from the instrument to the computer, for the management of a database
 - Measurement report in *.xls, *.pdf, *.doc, *.rpt or *.rtf format



Par VDA 2007			
Parameter	Value	Tol-	Tol+
WDSm	0.273 μm		
WDc	0.971 μm		
WDt	2.243 μm		

Included in delivery

License key (dongle)
 USB-PC connection cable, 1,8 m
 Installation file and user manual provided on a USB drive

Article
number

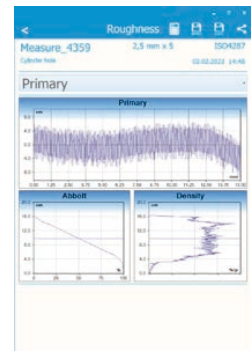
Designation

06960048 MEASUREMENT STUDIO software

Software for roughness gauges

DATA-STUDIO

- COMPATIBILITY
 - RUGOSURF 20 (wired connection)
 - TWIN-SURF (wired and Bluetooth® connection)
 - Wireless printer (Bluetooth®)
- FUNCTIONS
 - Remote management of measurement start and calibration
 - Visualization of the measured parameters
 - Visualization of the measured roughness profiles R, primary P and RK
 - Calculation of roughness parameters, including VDA parameters
 - Statistical calculations from several measurements
 - Adjustable upper and lower tolerance for each parameter
 - Creation and archiving of measurement programs (instrument settings and parameters to be measured)
 - Measurement programs transferable to the instrument
 - Measurement report for each parameter head
 - 57 parameters available with the Premium version
- DATA MANAGEMENT
 - Connection to the instrument via USB or Bluetooth® (depending on the instrument)
 - Import of measurements saved from the instrument to the computer for data base management
 - Printing of results with printer accessory
 - Measurement report in . xls and .pdf format



Included in delivery

USB key including:
Licence key
User manual
Software installation file

Article number	Designation
06960091	DATA-STUDIO software