



# Instruction Manual TWIN-TESATRONIC Displays

04430014: TWIN-T20 04430020: TWIN-T20 nano



Version 2, March 2022

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ME44.77053





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1. INTRODUCTION					
1.1 Acknowledgements	Dear user, We would like to thank you for having chosen TESA as your metrology partner. We thank you for your confidence in purchasing this best-in-class display. The whole TESA team welcomes you to our family of TESA product users.				
	Your TESA team				
1.2 Warning	This quick start manual must be read by every technician or operator before the installation, maintenance or use of the instrument. Not adhering to certain instructions regarding its use could lead to malfunction or deterioration of the instrument.				
1.3 Copyright (document)	The content of this document has been created subject to subsequent modifications without prior notice. All rights are reserved to ©2021 Hexagon AB and/or its subsidiaries and affiliates.				
1.4 Registered design	Design of the device is protected by registered design DM212520.				
1.5 Symbols	Several different types of symbols are used in this manual. They give important information that has to be taken into account in order to correctly use the measuring instrument.				
	Position Description				
	Not adhering to these instructions can lead to incorrect measurement results.				
	$\sum_{i=1}^{n} \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} Corresponds to an assistance for better use.$				
2.1 Specifications	<ul> <li>Standard working conditions: 20°C +/- 1°C, humidily: 40 &lt; HR &lt; 65 %, no condensation.</li> </ul>				
	• Limit working conditions: $10^{\circ}C < T^{\circ} < 40^{\circ}C$ , humidity < 80 %, no condensation.				
	<ul> <li>Storage conditions: -10°C &lt; T° &lt; 60°C, humidity &lt; 80 %, no condensation.</li> </ul>				
	<ul> <li>Indication error (@20 °C, HR = 50%, based on fictive probes):</li> <li>± (0,2 % of the measured value + 0,3 µm)</li> </ul>				
	• Zero drift (@20 °C and 50 % HR): Max 0.15 um/°C				
	• Size (mm): 190x112x119				
	• Weight (kg):				
	Plevel of protection (IEC 529): /P65 for front side. (P20 others				
	Voltage (input) 100 to 240 V / 50-60 Hz, 0,6 A. Power consumption = 4,2 w without device.				
	For optimised performances, users are responsible to perform regular calibrations to compensate any potential drift due to temperature, humidity, or other external factors.				



#### 3. PRESENTATION

3.1 General description





	- X	No hub is admitted on USB ports.
3.2 Delivery contents	Qty	Description
	1x	Display
	1x	Power supply
	1x	Power cable
	4x	Power cable connectors: 1xEU, 1xUSA, 1xCH, 1xUK
	1x	Auto-test report
	1x	Calibration certificate
	1x	Quick start manual
	2x	Foams

#### 4. UNPACKING

We recommend keeping the original packaging for transport to avoid any deterioration.



5. INSTALLATION, SECU	URITY & MAINTENANCE
5.1 Thermal stability	$\widetilde{\mathbb{C}}_{0}^{(1)}$ . The display must be switched ON 30 minutes prior to starting measurements.
5.2 Cleaning	Only use a dry, lint-free cloth for cleaning the instrument. Do not use aggressive solvents.
5.3 Opening elements	If a person who is not authorised opens the device, the warranty period is automatically void.
5.4 Recycling	Do not dispose of this product with municipal waste. Consult local regulations for disposal of electronic products.
5.5 Compatibility	<ul> <li>DIN 45322 ports (rep. 6 and rep. 7 from page 5), compatible with: <ul> <li>all TESA half-hidge probes except DC and USB versions.</li> </ul> </li> <li>USB-A host for outputs (rep. 9 from page 5), compatible with: <ul> <li>-QR code reader (brand Datalogic Heron HD3430 configured in USA keyboard, other to be tested)</li> <li>-USB memory sticks (Verbatim StoreN'Go 32Go or TOSHIBA transmemory U301 OK, other to be tested)</li> <li>-USB footswitch (TESA article 04761071)</li> <li>-Keyboards (OWERTY type, USA)</li> </ul> </li> <li>USB-A host for inputs (rep. 5 from page 5), compatible with: <ul> <li>-TESA elders with TLC pot (+ cable TLC-USB TESA article 04761081)</li> <li>-TESA elders with Opto port (+ cable Opto-USB TESA article 04761062)</li> <li>-TESA eldertonic micrometers with Opto port (+ cable Opto-USB TESA article 04761062)</li> <li>-TESA eldertonic micrometers with Opto port (+ cable Opto-USB TESA article 04761062)</li> <li>- Most of Mahr® and Sylvac® devices (+manufacturers cables), to be tested.</li> <li>- Lack 02.6 (rep. 11 from page 5), compatible with: <ul> <li>- TESA closwitch (TESA article 0478001)</li> </ul> </li> <li>- Disub ports 150 (rep. 13, page 5) compatible with: <ul> <li>- TESA foreswitch (TLSA article 0478001)</li> </ul> </li> </ul></li></ul>

## 6. SIMPLIFIED USER MANUAL

6.1 Starting	The instrument can be switched on using button rep. 12 page 5.
6.2 Initial page	After installation process, you reach this initial page configured from manufacturing:

#### 6.3 Home page

Use ( to reach the Home page giving access to all settings:



# You can come back to measuring page using





#### 6.4 Display types





Choose the display type you want and use to apply

Nota: The "Galvanometer type" is limited to 1 measurement display and erase the second one if existing

#### 6.5 Measurement definition















#### 6.5.2 Sorting

Sliding the first measurement setting page, you have access to the sorting page.



Add up to 8 categories using +

#### 6.5.3 Advanced measurement settings



6.6 System configuration



- 6.6.1 Language
- 6.6.2 Keyboard type

6.6.3 Date

6.6.4 Time

6.6.5 Lock option

Measurement's settings can be locked with a 4 digits code using this option accessible sliding previous page.

System configuration	7 8 8 9	System configuration / Scree		? @ @ @
Language				
bee		ton V		
Tase				
	• • • •		0 0 0 0	

Select keyboard type in this area 2 Set the date in this area 3

Set the time in this area (4)



6.6.6 Configurable soft-

key and footswitches

#### Instruction Manual TESA TWIN-T20 / TWIN-T20 nano

1x softkey accessible in the measuring page + 1x jack footswitch + 2x USB footswitches are configurable in these 2 pages sliding previous page:





Configurable softkey + jack footwitch



Configurable USB footwitches

#### Choices for configuration:

None / Zero / Clear Zero / Calibration / Init. Dyn. / Next sequence / Transfert / USB read trigger.

Nota: for "Transfer" choice, you need to select the transfert destination:



#### 6.7 Sensors



The "Sensors" page summarizes all the connected devices with their parameters:





Sensors		۵ 😂
TESA-BUS	H(2)	
1(2).		
	• •	

View of connections for TWIN-T20 nano.

The H(1) and H(2) D-sub 15p connections are used for HEIDENHAIN probes.

mm

The field "Pitch (µm)" is the probe pitch to be determined according to the sensor model.

The "Interpolation" field defines the probe resolution. The standard value used is 200 for a unit in mm. The value used can vary between 200 and 2000.

The interpolation rate is here understood as the number of increments into which the input signal is divided.

Resolution = Pitch / Interpolation



#### 6.8 Connectivity



#### Instruction Manual TESA TWIN-T20 / TWIN-T20 nano



- transferable part dimensions (see 6.5.3 chapter)
- Dimensions of the part
- Measurement 1.1
- Measurement 1.2

Nota 1: you can easily obtain an overview from the measurements definition page (see 6.5)

Measurements definition	on		H	۲	٢
Sequence 1			rnce 2		
Measurement L			event 2.1		
/	1				

Symbol for measurements set as transferable

Nota 2: RS-232 output protocol

#### Features:

Transmission speed: 4800 Baud	Parity: even
Start bit: 1	Character output: 7 ASCII databits
Stop bit: 2	

Send required information followed by <CR>

#### 6.9 Folder





2 measuring programs can be saved in the TWIN-T20 and can be selected on this page.

6.10 Modbus	The Modbus protocol allows the display to be connected to a PLC.					
	Login information and libraries are available on the LSA website in the download section.					
6.11 TESA-MODUL	Functionality can be added with TESA-MODUL via different module models.					
	All modules are connected according to the following procedure:					
	An modules are connected according to the following procedure.					
	1. Connect the module via the TESA-BUS connector, using a 9p/f D-sub to					
	D-sub cable 9p/m (04761052). The LED on the module flashes.					
	2. Enter the "Sensors" menu.					
	3. Press the "TESA-BUS" connector.					
	Fress the ID button on the TESA-MODUL you wish to add to your					
	5. Press the ID button on the TESA-MODOL you wish to add to your configuration					
	6 The newly added module now appears on the screen (Case TM X X)					
I						
6.12 Firmware update	If improvements to the instrument's functionality are made, the firmware can be made available by the TESA Service team if required.					
	To update the firmware, use the TESA Display Service software, which is available in the download section of our website.					
	1 Open the TESA Display Service software					
	<ol> <li>Open the resort bisplay derived software.</li> <li>Click on "Browse" to select the bin file for the latest firmware update.</li> </ol>					
	<ol><li>A new window will open for the rest of the procedure.</li></ol>					
	TESA Display Service ? 🗕 🗖 🗙					
	Firmware file :					
	Browte					
	The update file is missing or not compatible ! Click on Browse Button to select one.					
	Start update Step : Firmware update for TESA displays					



- 1. Power the display using the main power supply.
- 2. Connect the USB A-B cable (04760151) between the display and your computer.
- 3. Connect the pedal jack (04768001).
- 4. Press and hold the pedal jack.
- While holding it down, start the display with the main switch to enter update mode. Update begins automatically.
- 6. The pedal can now be released.



To check the update, restart the display. Click on the TESA logo on the start-up screen. A window will appear with the current firmware version.



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Quality Assurance

#### 9. FAQ

9.1 How to add a sequence?



Select "home page" from the measurement page



Select "Measurement definition" from the home page.



This is the standard configuration when display is delivered: the measuring program for the part is performed through 1 sequence and 2 measurements are displayed on the same sequence.



For the "Galvanometer" display type, the quantity of displayed measurement is limited to 1 measurement and 1 sequence. Only the first measurement is kept when display type is changed.





Use "+" button to create a second sequence





I 🗃 🙆

Use right side arrow to displace the measurement 1.2 in the second sequence.







Use "+" button to display "sequence" key.

Then, use "sequence" key to go to next sequence.

#### Nota:

You can easily know which sequence is displayed looking at the top of the screen:



#### 9.3 How to change language?



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NOTES



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