



LAT N° 093
Calibration Centre
The products are NOT covered by accreditation

COMPLETO DI
Certificato di Taratura ACCREDIA

COMPLETE WHIT
ACCREDIA Calibration Certificate

BTR2 is a torque bench for static measurements composed of a digital indicator and a strain gauge torque extremely rugged and compact with a precision better than 0.20 %.

It is ideal for the calibration and control of torque wrenches, screwdrivers direct reading and snap.

The indicator is powered by one Li-Ion rechargeable battery with an autonomy of 80 hours, with the AUTO POWER OFF function which occurs when there are no changes in measurements for a time of 30 minutes.

The new generation electronics section is composed by a particularly stable analog circuit and by an A / D converter 24 bit that allows, in static mode, a very high resolution and a acquisition frequency that in peak mode is 4800 Hz.

On the display is present an analogue bar indication for the torque, always active also inside the programming menu.

To increase the practicality of using the new BTR2 has the possibility to rotate the display by 90° to be able to work both horizontally and vertically using the special bracket option.

BTR2 can operate in two different modes:

- **STANDARD Mode** : Direct readout that displays the torque in real-time at high resolution
- **PEAK Mode**: ideal for measurements of trip torque clockwise and counterclockwise.

MAIN FEATURES



- AUTONOMY: 80 HOURS WITHOUT RECHARGE
- BATTERY RECHARGE TROUGH USB PORT
- ORIENTABLE LCD DISPLAY with BACKLIGHT
- 9 MEASUREMENT UNIT
- PROGRAMMABLE RESOLUTION
- PROGRAMMABLE DIGITAL FILTER
- ZERO FUNCTION
- PEAK FUNCTION (clockwise and anti-clockwise)
- FIRST PEAK FUNCTION
- AUTOMATIC AUTO RESET OF THE PEAK
- AUTO POWER OFF FUNCTION
- USB COMMUNICATION PORT
- KEY BLOCK FUNCTION
- INTERNAL DATALOGGER (option)
- INTERNAL CLOCK CALENDAR (option)
- RS232 COMMUNICATION PORT (option)

Complete with ACCREDIA Calibration certificate (clockwise).

ACCESSORIES and SOFTWARE APPLICATIONS

For a full calibration system it is available a ATC support and the software TorqueKAL. The software acquires measures automatically, compute calibration errors and print Calibration report ACCREDIA referred and more....

TECHNICAL DATA

PRECISION CLASS UNI 113114 (EURAMET cg-14) LINEARITY AND HYSTERESIS	1 from 10% to 100% F.S. $\leq \pm 0.20$ % F.S.
NOMINAL TORQUE (F.S.)	0.5 - 2.5 - 5 - 10 - 25 - 50 N•m 100 - 250 - 500 - 1000 - 2000 N•m
INTERNAL RESOLUTION DIRECT READING : CONVERSION PER SECOND PEAK MODE : CONVERSION PER SECOND	24 bit 10 Hz 4800 Hz
REFERENCE TEMPERATURE SERVICE TEMPERATURE RANGE STORAGE TEMPERATURE RANGE	+23 °C 0 / +50 °C -10 / +60 °C
10°C TEMPERATURE EFFECT a) on zero b) on sensitivity	$\leq \pm 0.015$ % $\leq \pm 0.005$ %
CUSTOM LCD DISPLAY CHARACTER HEIGHT 16 mm PROGRAMMABLE BACKLIGHT from 1 to 60 seconds BACKLIGHT : LED BLU ANALOG BAR INDICATION	
PROGRAMMABLE RESOLUTION PROGRAMMABLE DIGITAL FILTER ZERO FUNCTION PEAK FUNCTION FIRST PEAK FUNCTION PROGRAMMABLE PEAK AUTO RESET PROGRAMMABLE AUTO POWER OFF FUNCTION KEY BLOCK FUNCTION (LOCK) 	1, 2, 5, 10 from 0 to 10 (Direct reading) 100 % F.S. Clockwise and counterclockwise from 1 to 99 % F.S. clear the PEAK after a set time From 1 to 30 minutes (no changes) To protect parameters from changes
MEASUREMENT UNIT	kN•m - N•m - N•cm - daN•m - kgf•m ozf•ft - lbf•ft - ozf•inch - lbf•inch
COMMUNICATON PORT MODE CONTINUOS TRANSMISSION MODE ON DEMAND TRANSMISSION MAX DISTANCE	USB 2.0 4800 values per second On demand 5 m
POWER SUPPLY BY INTERNAL BATTERY BATTERY RECHARGE AUTONOMY TIME TO RECHARGE	Li-Ion size 14500 3.6V RECHARGEABLE Through USB 80 hours ~ 8 hours

Mechanical features

PROCESS COUPLING (UNI ISO 1174-1): 0.5 - 2.5 - 5 - 10 N•m 25 - 50 N•m 100 - 250 N•m 500 - 1000 N•m	<input type="checkbox"/> 1/4" female <input type="checkbox"/> 3/8" female <input type="checkbox"/> 1/2" female <input type="checkbox"/> 3/4" female
MECHANICAL LIMIT VALUES: a) service pressure b) max. permissible pressure c) breaking pressure	100 % F.S. 150 % F.S. >300 % F.S.
TIGHTENING WRENCH TIGHTENING TORQUE	27 mm 28 N•m
PROTECTION CLASS (EN60529) SENSOR EXECUTION MATERIAL CASE EXECUTION MATERIAL	IP40 INOX 17-4 PH ALLUMINIUM and STEEL

Options

The **DATA LOGGER** function works in 2 different mode:

- **AUTOMATIC** registration of the measures on the basis of a time, in direct reading mode.
- **MANUAL** registration of the measures in PEAK mode.

Programmable Acquisition Interval	from 1 second to 10 hour
Max number of acquisition point	60.000 points
Internal Clock Calendar	Year-month-day-hour-minutes-seconds

The stored measurements can then be displayed on the display or downloaded directly to a PC via the Quick Analyzer software that allows you to have a graphical representation and export data into Excel for a customized analysis.



The RS232 port is used as an alternative to the USB and allows you to connect with a PC, Tablet or PC up to 15 meters away.

COMMUNICATION PORT	RS232C
BAUD RATE	19200, 9600, 4800
TYPE OF COMMUNICATION	ON DEMAND
REAR PANEL CONNECTOR	DB9 Female



OPTION

For special applications, you can have the BTR2 sensor and the indicator DTR2 separate and connected by a cable.

Accessorie Supplied

USB Power Supply(5VDC @700mA)
 USB cable.
 CD with MANUAL and USB DRIVER.



Accessories (to be purchased separately)

ATC: Mechanical support, with dual linear guide, for the calibration and verification of torque wrenches snap or direct reading.

It allows you to apply the load gradually continuously, in compliance with the UNI EN ISO 26789 (2004).

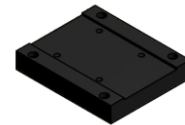
There are 2 models:

ATC1K field with up to 1000 N•m.

ATC2K that allows you to work up to 2000 N•m.



Additional plate to install more BTR2 on the generator manual ATC.



Bracket for vertical mounting.

Code: **ST**



Carrying case in ABS.



RS232C cable



CALIBRATION CERTIFICATE ACCREDIA ANTI-CLOCKWISE.

Calibration report CLOCKWISE (as an alternative to ACCREDIA Certificates).

Calibration report ANTI-CLOCKWISE (as an alternative to ACCREDIA Certificates).

Software Applications (to be purchased separately)

TorqueKAL: Software for the calibration and metrological confirmation for torque wrenches, wrenches and torque screwdrivers.

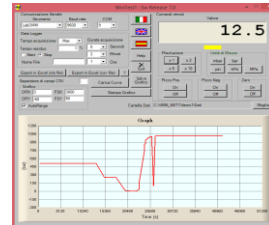
The calibration procedure is performed according to the UNI EN ISO 6789.

Evaluation of the uncertainty of calibration is performed according to the requirements of the UNI CEI ENV 13005.



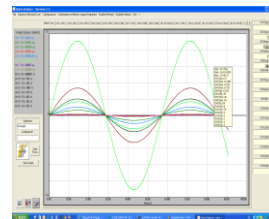
WinTEST1: Software allows to manage the basic commands of the instrument, create test graphs, export data to Microsoft Excel format, printing and archiving of tests.

LOW COST version.

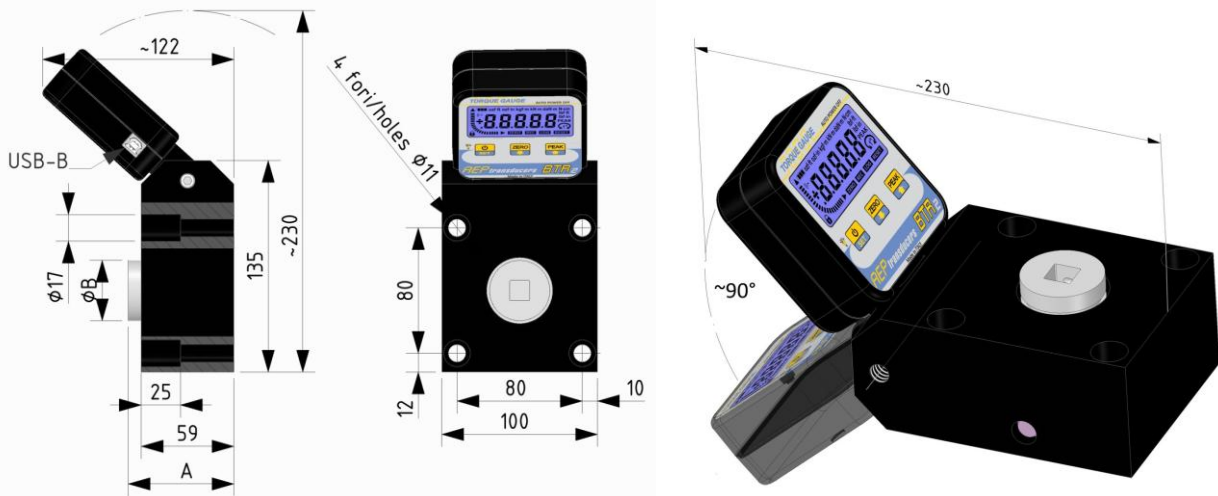


Quick Analyzer Light: Professional software that interfaces directly to BTR2 and supports the operator in the various test functions, analysis, monitoring over time, data storage, **DATA LOGGER** management, transfer of measures on Microsoft Excel etc ...

Ideal to see the trend of tightening torque.

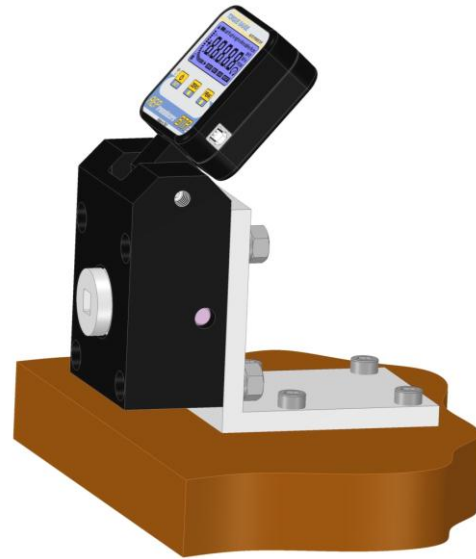
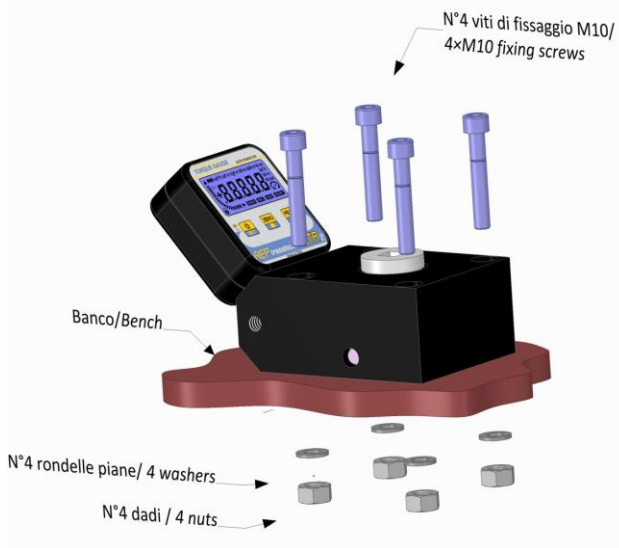


Dimensions (mm)



ORIENTABLE DISPLAY



HORIZONTAL mounting**VERTICAL attachment via BRACKET
(purchase separately)****STANDARD INDICATIONS**

Nominal Torque	Display	Resol.	Display	Resol.	Display	Resol.	Display	Resol.
N•m	N•m	N•m	kN•m	kN•m	N•cm	N•cm	daN•m	daN•m
0,5	0,5000	0,0001	0,0005	0,0001	50,000	0,010	0,0500	0,0001
2,5	2,5000	0,0005	0,0025	0,0001	250,00	0,05	0,2500	0,0001
5	5,000	0,001	0,0050	0,0001	500,00	0,10	0,5000	0,0001
10	10,000	0,002	0,0100	0,0001	1000,0	0,2	1,0000	0,0002
25	25,000	0,005	0,0250	0,0001	2500,0	0,5	2,5000	0,0005
50	50,00	0,01	0,0500	0,0001	5000,0	1,0	5,0000	0,0010
100	100,00	0,02	0,1000	0,0001	10000	2	10,000	0,002
250	250,00	0,05	0,2500	0,0001	25000	5	25,000	0,005
500	500,0	0,1	0,5000	0,0001	50000	10	50,000	0,010
1000	1000,0	0,2	1,0000	0,0002	-----	-----	100,00	0,02
2000	2000,0	0,5	2,0000	0,0005	-----	-----	200,00	0,05

Nominal Torque	Display	Resol.	Display	Resol.	Display	Resol.
N•m	kgf•m	kgf•m	ozf•ft	Ozf•ft	lbf•ft	lbf•ft
0,5	0,0500	0,0001	5,9000	0,0020	0,4000	0,0001
2,5	0,2500	0,0001	29,500	0,010	2,0000	0,0005
5	0,5000	0,0001	59,000	0,020	4,0000	0,0010
10	1,0000	0,0002	118,00	0,05	8,0000	0,0020
25	2,5000	0,0005	295,00	0,10	20,000	0,005
50	5,0000	0,0010	590,00	0,20	40,000	0,010
100	10,000	0,002	1180,0	0,5	80,000	0,020
250	25,000	0,005	2950,0	1,0	200,00	0,05
500	50,000	0,010	5900,0	2,0	400,00	0,10
1000	100,00	0,02	11800	5	800,00	0,20
2000	200,00	0,05	23600	5	1600,0	0,5

Nominal Torque	Display	Resol.	Display	Resol.
N•m	ozf•inch	ozf•inch	lbf•inch	lbf•inch
0,5	71,000	0,020	5,000	0,001
2,5	355,00	0,10	25,000	0,005
5	710,00	0,20	50,000	0,010
10	1420,0	0,5	100,00	0,05
25	3550,0	1,0	250,00	0,05
50	7100,0	2,0	500,0	0,1
100	14200	5	1000,0	0,2
250	35500	10	2500,0	0,5
500	71000	20	5000,0	1.0
1000	-----	-----	10000	2
2000	-----	-----	20000	5

How to configure a complete standard system

To calibrate a wide range of instrument you need to determine:

- MINIMUM torque of the torque wrench smaller.
- MAXIMUM torque of torque wrench bigger.

With this information we can determine how many standard instruments are needed to cover the entire field ensuring Class 1 UNI 113114.

Example

To cover a range of 1 to 1000 N•m need 3 instruments:

- BTR2 from 1000 N•m covering the range from 1000 to 100 N•m.
- BTR2 100 N•m covering the range from 100 to 10 N•m.
- BTR2 by 10 N•m covering the range from 10 to 1 N•m.

PURCHASE CODES

MBTR2			Full Scale	Option	Option
0N5 ⁽¹⁾	25N	500N	D = Data logger	R = RS232 OUTPUT	
2N5 ⁽¹⁾	50N	1Kn			
5N	100N	2kN			
10N	250N				

Example: **MBTR250ND**

⁽¹⁾ Calibration ACCREDIA CAN NOT be performed by the Center LAT N ° 093, on request can be commissioned to other centers accredited calibration.

AEP transducers



Dasa-Rägister
EN ISO 9001:2008
IQ-1100-01



LAT N° 093
Calibration Centre
The products are NOT
covered by accreditation



Production Quality
Assurance Certified n°
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In order to improve the technical performances of the product, the company reserves the right to make any change without notice.



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