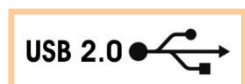




ORARIO  
ANTIORARIO  
CLOCKWISE  
ANTI-CLOCKWISE



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

**COMPLETO DI**  
Certificato di Taratura ACCREDIA

**COMPLETE WITH**  
ACCREDIA Calibration Certificate

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

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

The indicator is powered by a Li-Ion rechargeable battery with an autonomy of 80 hours and it is fitted with an AUTO POWER OFF function which occurs when there are no changes in measurements for more than 30 minutes.

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

The torque value is always displayed with an analogue bar, which remains visible even while changing the configuration settings.

For increased practicality, the new BTR2 display can be rotated by 90° therefore allowing the device to be used horizontally or vertically using the optional mounting bracket.

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



- BATTERY LIFE: 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 complete calibration system, the ATC bench and the TorqueKAL software can be provided. The software can automatically acquire measurements, compute calibration errors, print ACCREDIA Calibration reports and more...

## Technical Data

PRECISION CLASS UNI 113114 (EURAMET cg-14) LINEARITY AND HYSTERESIS	1 from 10% to 100% F.S. $\leq \pm 0.20 \% \text{ F.S.}$
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: BLUE LED 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 UNITS	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 BATTERY LIFE TIME TO RECHARGE	Li-Ion 1800mA/h 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 2000 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 <input type="checkbox"/> 1" female
MECHANICAL LIMIT VALUES: a) service torque b) max. permissible torque c) breaking torque	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 modes:

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

Programmable Acquisition Interval	from 1 second to 24 hours
Max number of acquisition point	130000 points
Internal Clock Calendar	Year-month-day-hour-minutes-seconds

The recorded 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 to export data to Microsoft 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 DTR2 indicator separated and connected by a cable.

## Supplied Accessories

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



## Optional Accessories (to be purchased separately)

**ATCplus:** Mechanical support, with dual linear guide, for the calibration and verification of torque wrenches both snap or direct reading. It allows the load to be applied gradually and continuously, in compliance with UNI EN ISO 26789 (2004).

There are 2 models:

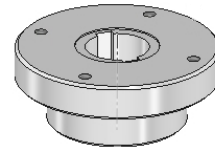
**MATCP1K** for measurements up to 1000 N•m.

**MATCP2K** for measurements up to 2000 N•m.



Additional plate to install easily more BTR2 on the generator manual ATCplus.

Code **PIASTRABTR**



Bracket for vertical mounting.

Code: **ST**



Carrying case in ABS.



RS232C cable



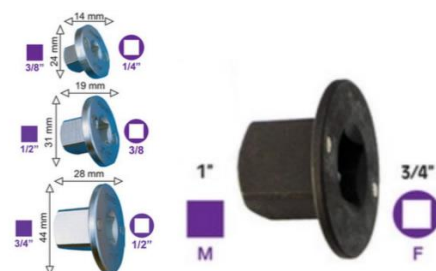
Missing magnetic **reduction fittings** ideal for torque spanners.

Code: **RIDSM** complete set of 3 pieces:

- FEMALE 1/4" - MALE 3/8"
- FEMALE 3/8" - MALE 1/2"
- FEMALE 1/2" - MALE 3/4"

Code: **RIDXL** complete set of 1 pieces:

- FEMALE 3/4" - MALE 1"



ACCREDIA ANTI-CLOCKWISE CALIBRATION CERTIFICATE.

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

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

## Software Applications (to be purchased separately)

**TorqueKAL:** a software for calibration and metrological confirmation of torque tools, torque wrenches and torque screwdrivers.

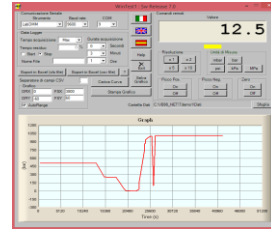
The calibration procedure is performed according to UNI EN ISO 6789.

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



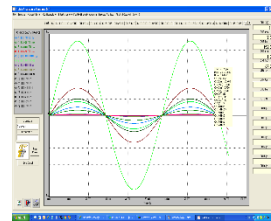
**WinTEST1:** a software that allows to manage the basic commands of the instrument, create test graphs, export data to Microsoft Excel, print and archive test results.

LOW COST Version



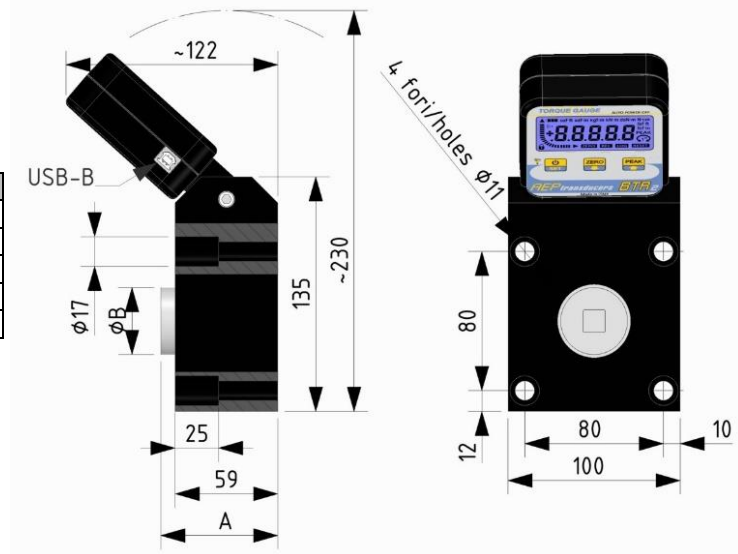
**Quick Analyzer Light:** a professional software that interfaces directly to BTR2 and supports the operator in the various test stages like: analysis, monitoring over time, data storage, **DATA LOGGER** management, exporting measurements to Microsoft Excel, etc.

Ideal to analyze the tightening torque trend over time.



### Dimensions (mm)

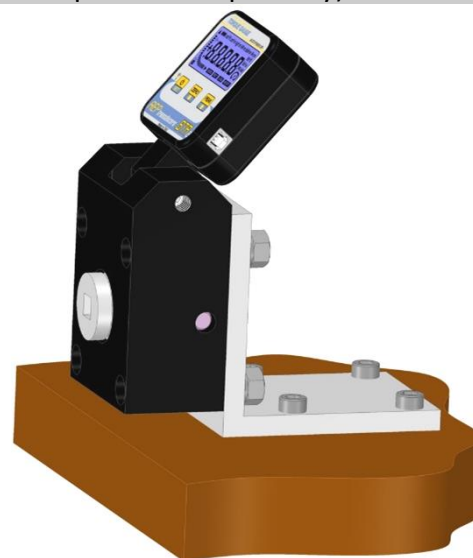
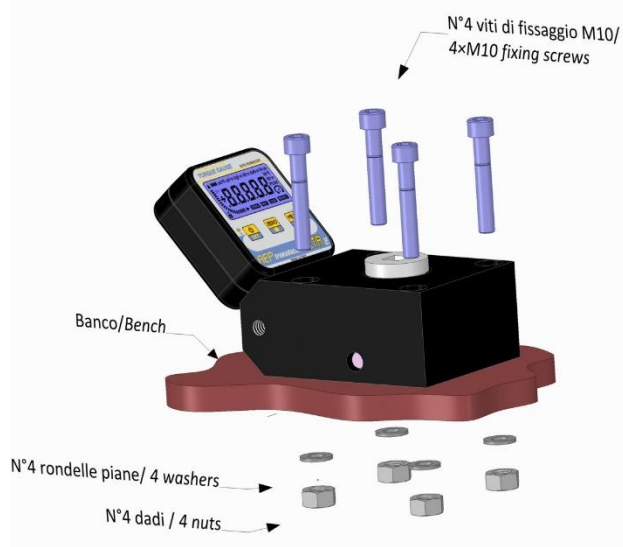
NOMINAL TORQUE	A	ØB
5 and 10 N•m	59 mm	35 mm
25 and 50 N•m	63 mm	35 mm
100 and 250 N•m	68 mm	38 mm
500 and 1000 N•m	76 mm	57 mm
2000 N•m	86 mm	57 mm



### ORIENTABLE DISPLAY





**HORIZONTAL mounting****VERTICAL mounting bracket**  
(to be 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 smallest wrench.
- MAXIMUM torque of the biggest wrench.

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 3 instruments are needed:

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

## Purchase codes

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

Example: **MBTR250ND**

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