



Alta Affidabilità  
High Reliability

15 Stabilità a lungo termine  
Long term high stability

RECHARGEABLE  
Battery

Risoluzione STANDARD  
 $\pm 50.000$  div  
STANDARD Resolution

CE RoHS

ACCURATEZZA  
 $\leq \pm 0.02\%$   
ACCURACY

USB 2.0

Data Logger



DF12 is a new concept microprocessor based digital indicator, totally autonomous and with input for strain gauges based load cells and force transducers with signal from 0.5 to 4.5 mV/V, suitable for both compression and tension measurements.

Ideal for use in the most modern static and dynamic measurement systems such as material testing machines, test benches, presses for molding, testing systems and automation in general.

Accuracy  $\leq \pm 0.02\%$  makes it possible to use it even within quality systems as a first or second line sample periodically calibrated in accredited laboratories.

The indicator is made up of a microprocessor, a particularly stable long-term analog section and a 24-bit A/D converter which guarantees a resolution of 50,000 divisions at 2mV/V with an acquisition frequency in PEAK mode of 10 acquisitions per second.

In addition to indicating the measurement, the DF12 is assisted by a programming menu, which allows you to customize the setting of the instrument to better adapt to each application, in particular you can adjust the resolution, the digital filter, the unit of measurement, the PEAK mode operation etc ...

To increase the ease of use and make the instrument completely autonomous, DF12 is powered by an internal Li-Ion rechargeable battery via the USB port and the included power supply or simply by connecting it to a PC.


Battery life can be extended by using the AUTO POWER OFF function which intervenes when no measurement changes are detected for a programmable time from 1 to 30 minutes.

The display also shows an analogue indication bar for pressure, that is still on, even in programming menu.

DF12 can work in two different ways:

- **Direct reading** that allows you to view the strength or weight in real time at high resolution.
- **PEAK mode** which displays the maximum force or weight measured, ideal for performing specimen break tests



### Main features:

- 80 HOURS AUTONOMY WITHOUT RECHARGING
- BATTERY RECHARGE THROUGH USB PORT
- LCD DISPLAY with BACK LIGHT
- CONVERSION IN 6 MEASUREMENT UNITS
- PROGRAMMABLE RESOLUTION
- PROGRAMMABLE DIGITAL FILTER
- ZERO and AUTO ZERO FUNCTION
- PEAK FUNCTION (compression and tension)
- AUTO POWER OFF FUNCTION
- USB COMMUNICATION PORT
- MENU LOCK FUNCTION 
- SEPARATE CALIBRATIONS FOR COMPRESSION AND TRACTION
- DATALOGGER WITH CALENDAR (opzione)
- RS232 COMMUNICATION PORT(opzione)

To complete the measurement system, different types of load cells and force transducers are available with measuring ranges from 1 kg (10N) to 500 ton (5MN), and a series of software dedicated to the analysis or calibration of test machines materials and test benches.

All measurement systems can be equipped with an ACCREDIA Calibration Report or Certificate.

## Technical data

ACCURACY CLASS	$\leq \pm 0.020 \%$
LINEARITY ERROR	$\leq \pm 0.015 \%$
INPUT SIGNAL	from 0.5 to 4.5 mV/V
CONNECTABLE LOAD CELLS	N° 1 350 $\Omega$ or 700 $\Omega$ (4 wires)
LOAD CELL EXCITATION	3V $\pm$ 3%
INTERNAL RESOLUTION	24 bit (2.000.000 div)
STANDARD RESOLUTION (2mV/V)	$\pm 50.000$ div
READINGS PER SEC. (0 filter) in <b>DIRECT READING</b>	10 Hz
REFERENCE TEMPERATURE	+23 °C
WORKING TEMPERATURE RANGE	0 / +50 °C
STORAGE TEMPERATURE RANGE	-10 / +60 °C
RELATIVE HUMIDITY	< 90 % non condensed
TEMPERATURE EFFECT (1°C):on zero	$\leq \pm 0.015\%$
TEMPERATURE EFFECT (1°C):on full scale	$\leq \pm 0.005\%$
Custom LCD DISPLAY CHARACTER HEIGHT 13 mm PROGRAMMABLE LIGHTING from 1 to 60 seconds BLUE LED LIGHTING BAR ANALOG INDICATION	
PROG. MEASUREMENT RESOLUTION	1, 2, 5, 10
PROGRAMMABLE <b>DIGITAL FILTER</b>	from 0 to 5
<b>ZERO</b> and <b>AUTO ZERO</b> FUNCTION	Enabled up to 100% F.S.
<b>PEAK</b> FUNCTION	COMPRESSION and TENSION
<b>AUTO POWER OFF</b> FUNCTION	from 1 to 30 minutes
<b>MENU LOCK</b> FUNCTION 	Programming protection

<b>CALIBRATION with FULL SCALE CALIBRATION with mV/V PROGRAMMING CALIBRATION with POINTS LINEARIZATION</b>	Compression and tension from 0.5 to 4.5 mV/V 5 points in comp. + 5 points in tension
UNITS OF MEASUREMENTS	Kg – t – N – daN – kN - lb
DIGITAL OUTPUT CONTINUOUS TRANSMISSION OF MEASUREMENTS TRANSMISSION ON REQUEST MAXIMUM DISTANCE	USB 2.0 10 measure per second on REQUEST or CONTINUOS 5m
INTERNAL BATTERY POWER SUPPLY RECHARGEABLE BATTERY AUTONOMY RECHARGING TIME	Li-Ion 1800mA/h 3.6V RECHARGEABLE from USB port (5Vdc) ~ 80 hours ~ 8 hours by PC or USB power supply
DEGREE OF PROTECTION (EN 60529) METALLIC ENCLOSURE WEIGHT	IP40 ALUMINUM ~ 0.4kg

## Options

The **DATA LOGGER** function allows the measurements taken at programmable time intervals to be stored into the internal memory of the instrument.

Programmable storage frequency	From 1 second to 10 hours
Max storable measurements	60.000 records
Internal calendar	Date, hours, minutes, seconds

The stored measurements can then be viewed on the display or downloaded directly to a PC using the **Quick Analyzer Light** software, which allows you to have a graphical representation or to export the data to Excel for a customized analysis.

For each recording, the corresponding measure, date and time are stored.



The **SERIAL RS232 COMMUNICATION** is used as an alternative to the USB output and allows you to connect with a PC, TABLET or PLC up to 15 meters away.

DIGITAL OUTPUT	RS232C
BAUD RATE	9600
TYPE OF TRANSMISSION	ON REQUEST
BACK CONNECTOR	Female DB9

## Accessories included



USB power supply  
(5Vdc - 700mA)



USB cable



OPERATING MANUAL and  
DRIVER USB on CD.

## Accessories (to be purchased separately)



Shock-resistant silicon COVER.  
Code: **TCOVQ**



Carrying case.



RS232C serial cable  
code: **TCAVOSERIALE**

ACCREDIA CALIBRATION CERTIFICATE in COMPRESSION and TENSION  
Calibration report in COMPRESSION and TENSION (as an alternative to ACCREDIA Certificates)

## Software applications (to be purchased separately)

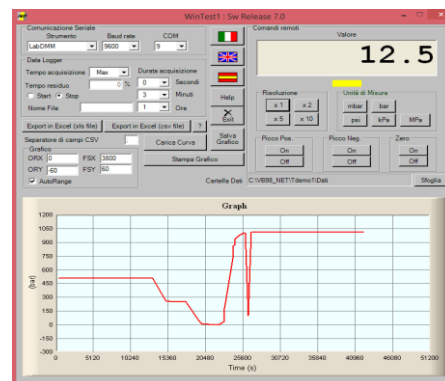
**ForceKAL:** Software dedicated to the calibration and metrological confirmation of torque gauges, wrenches and torque screwdrivers.

The calibration procedure performed is in accordance with the ISO 7500-1 Standard.  
The evaluation of the calibration uncertainty is carried out according to the requirements of the UNI CEI ENV 13005 Standard.



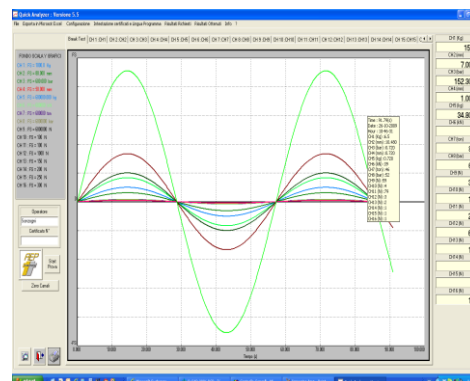
**WinTEST1:** Software that allows to execute the basic commands of the instrument, to create test graphs, export data in Microsoft Excel format, print and archive the tests

Versione **ECONOMICA**.



**Quick Analyzer Light:** Professional software that interfaces directly to DF12, supports the operator in the various tests, analysis, monitoring over time, data storage, direct management of the **DATA LOGGER**, transferring measurements on Microsoft Excel.

Ideal for viewing the torque trend.



### Application examples



DFI2 + C2S



DFI2 + TCA

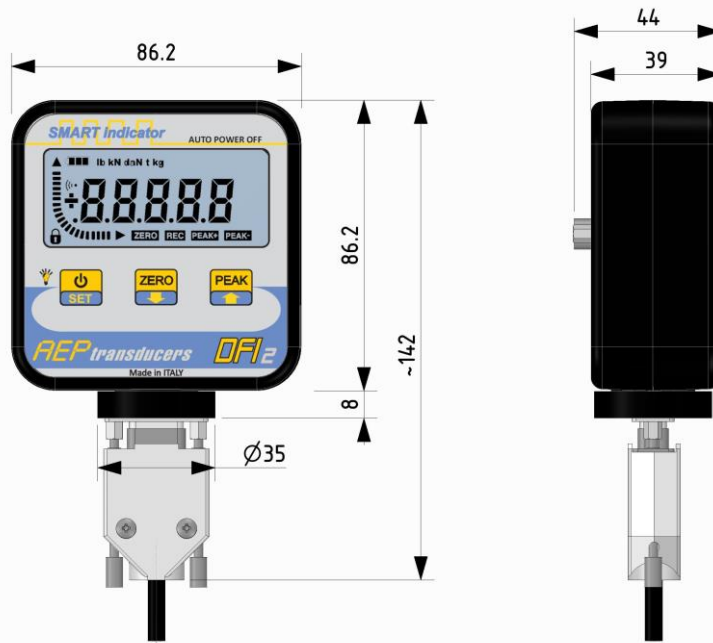


DFI2 + TCE



DFI2 + TC4

### Dimensions (mm)



### Purchase code

<b>EDFI2</b>	<b>Option</b>	<b>Option</b>
	D = Data logger	R = Uscita RS232

Esempio: E DFI2 D



Dasa-Rägister  
EN ISO 9001:2015  
IQ-1100-01



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



**Production Quality Assurance Certified n°**  
TÜV CY 17 ATEX 0205891 Q

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