Data Sheet: DSTAR.545.R1.ENG

www.ntt.dk

Dynamicstar — FAST Professional Handheld Indicator

Dynamicstar is an professional indicator, ergonomic, extremely versatile and simple to use for measures FORCE, WEIGHT, PRESSURE, TORQUE, DISPLACEMENT, SPEED and POWER.

It is equipped with an input for strain gauge transducers and an input for incremental encoder (optional).

Dynamicstar is particularly suitable for applications where it is requested high capture rate (up to 19,2kHz) that a high resolution (±200.000 divisions to 2mV/V for static measurement).

Dynamicstar can be connected with up to 7 different strain gauge transducers.

After being configured the instrument automatically recognizes the strain gauge sensor connected and self-configures the dedicated parameters (Unit, filter, resolution).

Internally, the microcontroller processes the signal from the strain gauge sensor through an 32bit analog to digital converter at a conversion frequency variable from 2,5Hz to 19,2kHz making

Dynamicstar adaptable to any application that may require both high resolution (in static applications) that high sampling rate (dynamic applications).

SOLLECITAZIONI DINAMICHE 19kHz DYNAMIC STRESSES

ACCURATEZZA ≤±0.0025% ACCURACY

Risoluzione STANDARD ±200.000 div STANDARD Resolution

CE RoHS

Alta Affidabilità High Reliability

USB 2.0

Measure of:

- ✓ ***Weight***
- ✓ ***Force***
- ✓ ***Torque***
- ✓ ***Angular***
- ✓ ***Speed***
- ✓ ***Power***
- ✓ ***Pressure***
- ✓ ***Displacement***

The incremental encoder input can manage quadrature signal type line driver RS422 (A +, A-, B +, B-), open collector or 5V TTL (A, B). **Dynamicstar** allows to manage both rotary and linear incremental encoders, determining position and speed informations in different units.

In combination, the informations of force and speed, allow you to determine the **Power Mechanics** (Force x Speed for linear and Torque x Revolutions per second for rotary systems) that can be displayed in different units.

The display is via a large LCD graphic display with backlight.

Dynamicstar can detect PEAKS, lock the display with HOLD function and via the internal data logger can record up to 266,000 measurements at programmed intervals or manually by the REC.

Dynamicstar can store acquisition points at maximum speed 19,2kHz for a time of about 13s. The storage can be affected by a trigger HW or SW to better define the time interval of the test.

The measurements are stored in non-volatile memory, which retains data even when the power down.

Measurements can then be downloaded via the powerful software **Winstar** for creating graphs, export to Excel, report printing etc.

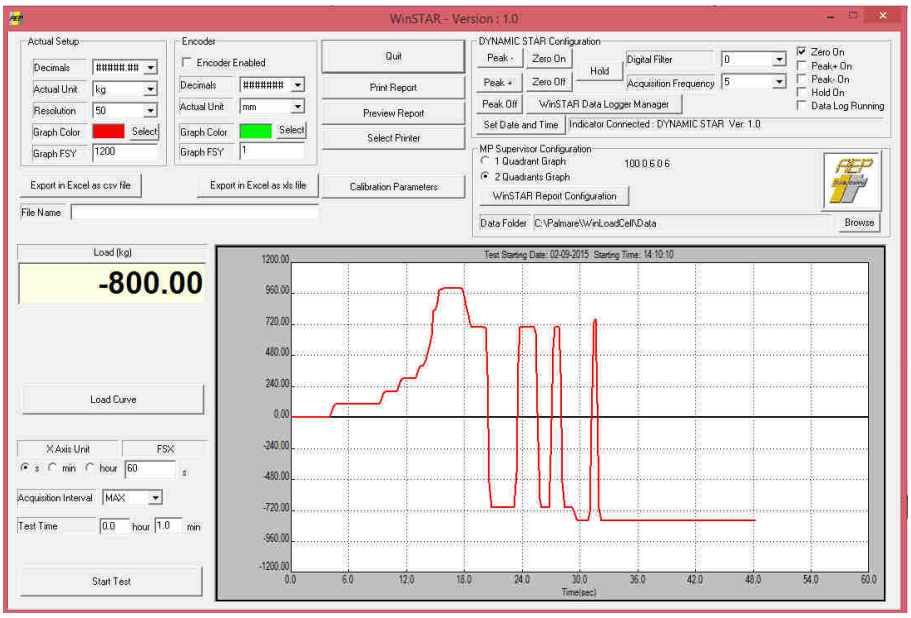
The USB output allows the real-time communication of data acquired through a simple communication protocol.

Dynamicstar is seen by a PC as a virtual COM port.

To reduce battery consumption, **Dynamic**star can be programmed to turn off after a set time (from 1 to 99 minutes). The backlight of the LCD display has three levels of intensity to adapt to all lighting conditions outside.

Moreover **Dynamic**star can be configured to display the LCD normally or upside down.

The instrument is powered by a rechargeable Li-Ion battery of high reliability that is recharged directly from the USB port.



The main features are:

- **HIGH RESOLUTION DISPLAY** graphic LCD with 3 levels of backlight and display upside down
- **AUTOMATIC SELECTION OF UP TO 7 EXTERNAL** strain gauge transducers of force, pressure, torque, displacement.
- **INCREMENTAL ENCODER input** for measuring position and speed (option)
- **CALCULATION OF MECHANICAL POWER**
- **HIGH FREQUENCY ACQUISITION** up to 19,2kHz
- **UP to ± 200.000 divisions for static measurements** (at 2 mV/V)
- **SELECTION BETWEEN DIFFERENT UNIT**
- **DATALOGGER FUNCTION** can store acquisition points at maximum speed (or 19,2kHz every 52µs)
- **TRIGGER** hardware or software to manage the storage interval of a cycle of data logger
- **HOLD FUNCTION**
- **PROGRAMMABLE RESOLUTION**
- **PROGRAMMABLE DECIMAL POINT POSITION**
- **PROGRAMMABLE DIGITAL FILTER**
- **ZERO FUNCTION**
- **PEAK FUNCTION** (positive and negative)
- **AUTO POWER OFF FUNCTION**
- **CLOCK / CALENDAR**
- **USB COMMUNICATION PORT**

Typical applications:

Calibration materials testing machines and test benches dynamic.

Calibration Impact Wrenches high speed

Dynamic test of both tension and compression springs.

Explosion tests on pipes or pressure vessels.

Tests on safety devices lifeline performed with the fall of weights.

Tests performed with the fall arrest systems of weights.

Engine test to determine torque, speed and power output.

Materials testing machines where you need to measure force and displacement.

AVAILABLE FITTINGS

FORCE and **WEIGHT** measurements using load cells or force transducers in compression and tension in the range from 10N (1kg) to 500t (5000kN).
Second channel with INCREMENTAL ENCODER input (rotary or linear) used for measures of **DISPLACEMENT, LENGTH or SPEED**.

PRESSURE or DEPRESSION (vacuum) measurements using pressure transducers (type TP16 or TP1) with normalized ranges up to 2000bar (29000psi).
Used for application in gases and liquids.

TORQUE, ANGLE, SPEED and **POWER** measurements using torque transducers type uTOR or RT2 with internal incremental ENCODER.
Normalized rangers from 0,5 to 5000 Nm.

TORQUE measurements using **STATIC** torque transducers (type TRA, TRX and TRF) in the range from 0,5N•m to 5000N•m.
Ability to record continuous **PEAKS** clockwise or anticlockwise at high speed (up to 19,2kHz).

DISPLACEMENT and **LENGTH** measurements using linear strain gauge transducers type LDT with normalized ranges from 5 to 200mm.

DISPLACEMENT, **LENGTH** and **SPEED** measurements using rotating incremental encoder

DISPLACEMENT, **LENGTH** and **SPEED** measurements using linear incremental encoder

Dynamicstar automatically recognizes up to 7 sensors connected alternately, **Auto configuring** with dedicated parameters (Unit, filter, resolution).

Main Features

ACCURACY: 0,0025% F.S.
LIEARITY 0,0015% F.S.

INPUT (CH1) strain gauge transducers: ± 2mV/V
Transducers connectable: max. 2 @350Ω or 4 @700Ω
4 wires connections
Excitation : 5Vdc ±3%

Resolution ±**200.000** div. @2mV/V with acquisition frequency of **2,5 Hz** (filter 0)
Resolution ±**150.000** div. @2mV/V with acquisition frequency of **5 Hz** (filter 0)
Resolution ±**100.000** div. @2mV/V with acquisition frequency of **10 Hz** (filter 0)
Resolution ±**80.000** div. @2mV/V with acquisition frequency of **16 Hz** (filter 0)
Resolution ±**65.000** div. @2mV/V with acquisition frequency of **20 Hz** (filter 0)
Resolution ±**50.000** div. @2mV/V with acquisition frequency of **50 Hz** (filter 0)
Resolution ±**50.000** div. @2mV/V with acquisition frequency of **60 Hz** (filter 0)
Resolution ±**40.000** div. @2mV/V with acquisition frequency of **100 Hz** (filter 0)
Resolution ±**20.000** div. @2mV/V with acquisition frequency of **400 Hz** (filter 0)
Resolution ±**15.000** div. @2mV/V with acquisition frequency of **1200 Hz** (filter 0)
Resolution ±**10.000** div. @2mV/V with acquisition frequency of **2400 Hz** (filter 0)
Resolution ±**8.000** div. @2mV/V with acquisition frequency of **4800 Hz** (filter 0)
Resolution ±**6.000** div. @2mV/V with acquisition frequency of **7200 Hz** (filter 0)
Resolution ±**4.000** div. @2mV/V with acquisition frequency of **14400 Hz** (filter 0)
Resolution ±**2.500** div. @2mV/V with acquisition frequency of **19200 Hz** (filter 0)

Using 2 channels CH1 and CH2 the max acquisition frequency is limited to **7200 Hz**

REFERENCE TEMPERATURE 23°C, Working Temperature da 0 a +50°C
TEMPERATURE EFFECTS on the measurements 10°C : on zero ≤ ± 0,005%, on Full Scale≤ ± 0,005%

High Resolution graphic DISPLAY LCD (128x64 dots) with 3 **BACKLIGHT** levels to adapt to all outside lighting conditions. The display can be configured upside down.

AUTOMATIC TRANSDUCERS IDENTIFICATION (up to 7) : FORCE, WEIGHT, PRESSURE, DEPRESSION, TORQUE DISPLACEMENT.

PROGRAMMABLE UNIT:
FORCE AND WEIGHT: Kg – t - N - daN – kN – MN – lb - klb
PRESSURE: bar-mbar-psi-MPa-kPa-Pa-mH2O-inH2O-kg/cm2-mmHg-cmHg-inHg-atm
TORQUE: N•m – N•mm – kg•m – kN•m - in•lbf - ft•lbf – g•cm - kg•mm
LENGHT AND DISPLACEMENT: mm - m - foot - inch - cm - dm –um

DIGITAL CALIBRATIONS : Password Protected with programming of the full scale for each transducer. Positive and negative field can be calibrated separately. (Example: Traction and Compression).

DATALOGGER allows you to store measurements and to keep them in the internal memory even if the power is turned off.
Using only one channel CH1 can be stored max. 266.000 records
Using two channels CH1 and CH2 can be stored max. 133.000 records
Registration takes place either in **AUTOMATIC** mode, programming a time interval ranging from

19,2 readings per second up to a reading every 30 minutes, or in **MANUAL** mode using the REC key.
At maximum speed, using only one channel CH1, it is possible to record test for up to 13,8 seconds.
The data can then be displayed on the display or downloaded via the powerful software **Winstar** for creating graphs, export to Excel, report printing etc.

PROGRAMMABLE RESOLUTION

DIGITAL FILTER and **ACQUISITION FREQUENCY** from 2,5 to 19200Hz.

ZERO function allows to clear values.
HOLD function allows to freeze the measurement so that it is possible to take note

PEAK function (positive and negative).
FIRST PEAK wih programmable threshold
AUTOMATIC RESET with programmabile time

Rechargeable internal battery Li-Ion @3,7V with 8 hours autonomy
AUTO POWER OFF function : programmable from 1 to 99 minutes.

Internal **CLOCK- CALENDAR**

USB Communication Port

PROTECTION CLASS (EN 60529): **IP40** , container **ALLUMINIUM** varnished, **WEIGHT** ~ 0,7kg

OPTION

INPUT (CH2) for incremental encoder linear or rotative

ENCODER signal type: line driver RS422 (A+,A-,B+,B-) , open collector 5Vdc , TTL

Counting pulse x 4, Max frequency 20MHz, External 5Vdc power supplì

UNIT:
ROTATIONAL SPEED: rpm –Hz
LINEAR SPEED: mm/min-m/min-ft/min-in/min-mm/s-m/s-ft/s-in/s
ANGULAR POSITION: degrees
LINEAR POSITION : mm - m - foot - inch - cm - dm –um
POWER: Watt-kWatt-lb•ft/s

PURCHASE CODES

DSTAR	indicator with standard input 2mV/V (CH1)

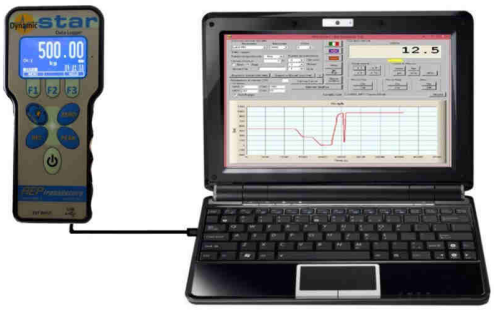
DSTARE	indicator with standard 2mV/V input (CH1) + **ENCODER** input (CH2)

INCLUDED ACCESSORY

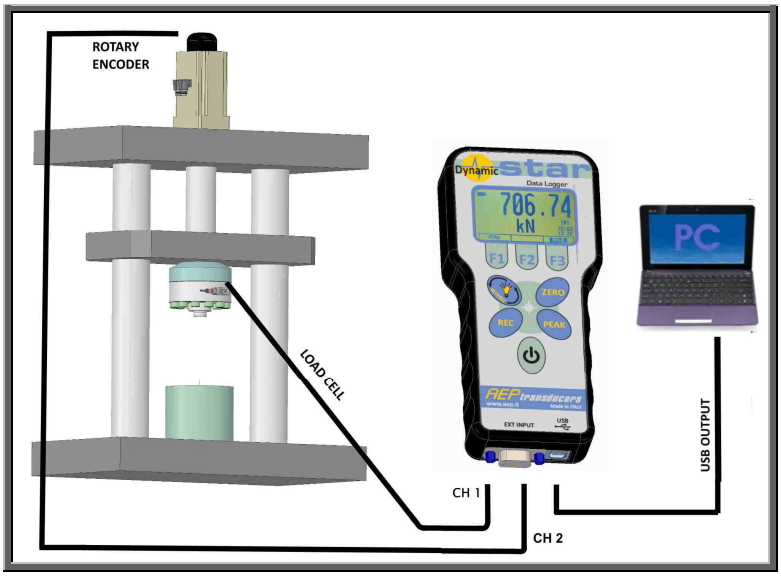
- ✓ Carrying case in ABS
- ✓ USB POWER SUPPLY (5VDC @700mA) + USB cable.
- ✓ CD with MANUAL and USB DRIVER.

ACCESSORY (to be purchased separately)

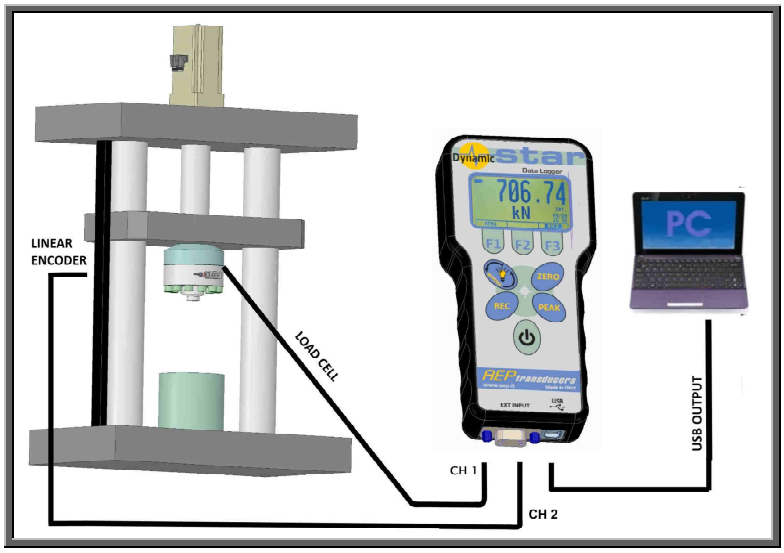
A dedicated program that allows an immediate interfacing through the USB port with the **Dynamic**star and allows you to view graphs, export data to Microsoft Excel directly from the PC and set all configuration parameters.
The program also allows you to download a Data Logger carried out using the internal memory and display the respective curves of acquisition.



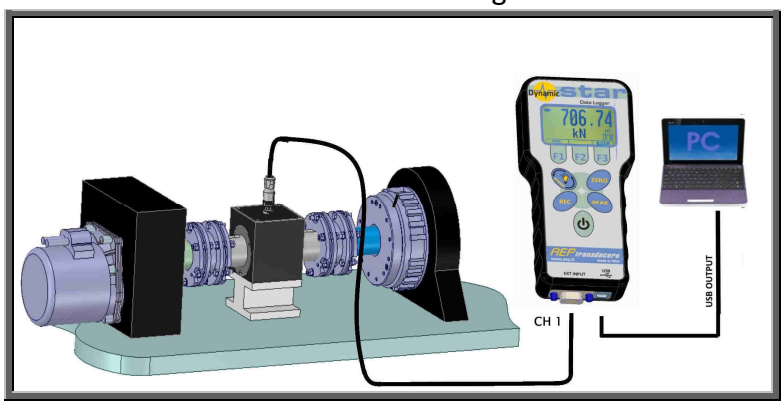
APPLICATION EXAMPLES



Measuring system on the press with direct control of the FORCE and DISPLACEMENT through Rotary Encoder

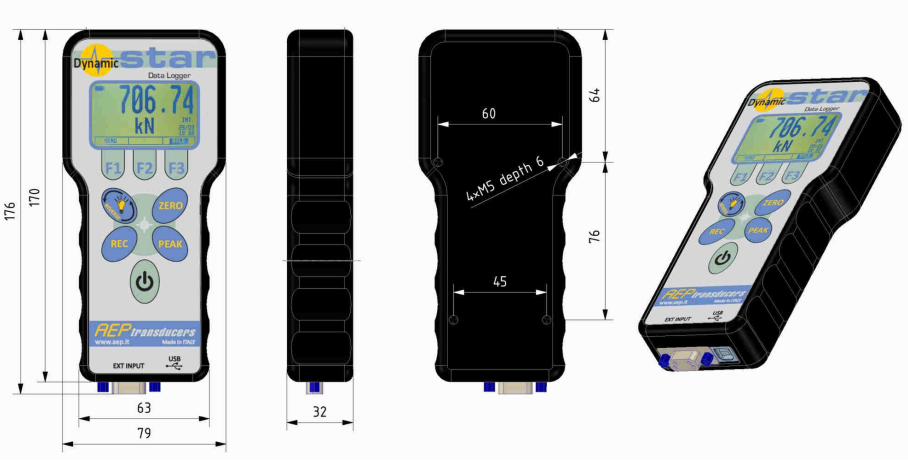


Measuring system on the press with direct control of the
FORCE and DISPLACEMENT through Linear Encoder



Measuring system on the test bench with direct control of the
TORQUE and SPEED through ENCODER internal to torque transducers RT2

Dimensions (mm):



NORDIC TRANSDUCER DENMARK

In order to improve the technical performances of the product, the company reserves the right to make any change without notice.