



Screwdriving technology

Automation

Air motors

Air tools

DEPRAG

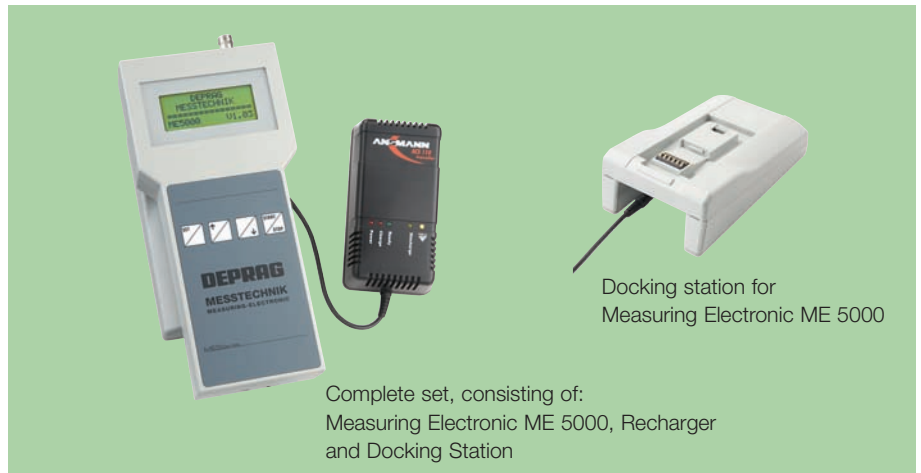
**MEASURING
ELECTRONIC**

Torque Measuring Instruments

For manual use

In connection with PE-(piezoelectric), DMS-(Strain Gauge) transducers or Transducers (DMS, non-contact) our torque measuring instruments permit the:

- torque adjustment, supervision and control of rotational screwdrivers
- control and calibration of hand torque wrenches
- torque control of stationary screwdriver spindles mounted in an assembly station
- torque verification and documentation of the assembly quality



Complete set, consisting of: Measuring Electronic ME 5000, Recharger and Docking Station



Measuring Electronic ME5400



Measuring Electronic ME5600



All measuring instruments of the ME (Measuring Electronic) series provide precise and highly dynamic measurements of torque values (see brochure D 3020 E) in connection with a measurement reading transducer:

- PE- (Piezo Electric) or
- DMS- (Strain Gauge) Transducer or
- Non-Contact Transducer

They are intended for the manual use in different application areas, such as: supervision, control and torque adjustment of screwdrivers; control and calibration of mechanical torque wrenches; control of integrated DEPRAG screwdriver spindles and finally for verification and documentation of the assembly quality in accordance with DIN EN ISO 9001 quality requirements.

Piezo-Electric Transducer:

The electric charge produced by the transducer is changed into an analogue measuring signal by a specially tuned charge amplifier.

DMS Transducer:

An analogue charge signal is already available on the DMS Transducers.

Non-Contact Transducer:

The non-contact transducer creates outgoing-charge proportionate to the torque from 0 to 5 volts.

Using a fast and high resolution AD converter the digital final value is displayed. The integrated microprocessor controls and monitors all settings and procedures. The standard device software can be set to different units of measurement (metric/imperial) as well as languages (German/English).

Operational Mode:

The measuring instruments can be operated in the following operational modes:

- Single measurement with display of the peak value
With this mode, all incoming measurements are registered and the highest single value, detected during the entire duration of the measurement, is displayed as the measurement result.
- Measurement Series
During the measurement series mode, the peak values of several single measurements are automatically summarized into a measurement series. From the measurement series, essential statistical values are calculated, such as the average torque value \bar{X} and standard deviation S.
- Single measurement with display of an prevailing torque value.

The measuring instrument ME 5600 allows a third operating mode, which constantly displays the prevailing torque-value.

All measurements are recognizable on the display. Depending on the instrument-design, the values can additionally be sent to one of our printers or to a primary host computer.

ME 5000

The compact, handheld measuring instrument ME 5000 allows that torque measuring operations can be done right at the assembly location. An integrated battery speeds up the automatic torque acquisition. This feature determines the best possible torque adjustment for a Screwdriver by measuring the torque directly on the product to be assembled.

The standard ME 5000 includes a Docking Station, which is needed to recharge the battery. The Docking Station also contains a serial port (RS232) to transfer acquired measuring values to a PC.

The measuring instrument ME 5000 can also be connected to the DEPRAG printer ND 40.

ME 5400:

The measurement electronic ME 5400 just contains the technical measuring parts of the ME 5600. All other functions such as displays, control panels, printing, etc. are taken on by a standard PC. The ME 5400 can only ever be used in conjunction with a PC (Windows 2000 or newer). This combination allows the processing of large amounts of data, and flexible subsequent processing because all relevant data is already available on the PC as ASCII data. In particular this offers excellent opportunities for further processing of measurement results with standard statistical programmes. Furthermore a complete screwdriving analysis can be carried out because the torque of the complete cycle process during the period of a measurement cycle can be shown on the PC. The essential curve analysis programme is contained as standard in delivery.

This design, the combination of ME 5400 and a standard industry PC, is ideally suitable for a stationary work place which as well as all other functions, also offers processing of specific screw analyses. In combination with our measuring platforms and measuring screwdrivers the most varied screwdriving problems can be examined in detail.

Connection to the measuring instrument is with a USB 2.0 port.

ME 5600

Through its integrated power supply the Measuring Electronic ME 5600 offers processing of various printers as well as registering larger measurement ranges of up to 100 values. Furthermore it is distinguished by an improved resolution of the measurement data and the additional operating mode of the current value display. It is frequently applied in the construction of a complete measurement wagon or in a measuring laboratory so that tests and settings of screwdriving tools of all kinds can be carried out on site. A connector socket for our printers ND 40 and ND 100 is integrated.

Printers:

As an essential accessory, the two dot-matrix printers ND 40 and ND 100 are available.

The compact and robust printer ND 40 is best suited for the use in harsh work areas. This printer can be operated using a power supply.

The ND 100 is good value for money and a versatile PC printer and can be connected to the measuring electronics of the ME series.

Factory Calibration on special order
<ul style="list-style-type: none"> • Calibration of a measurement transducer (measurement platform, torque wrench or non-contact transducer). • Calibration of a torque measuring instrument. • Calibration of a measurement chain (a measurement transducer and one torque measuring instrument). • The factory calibration includes testing, calibration, a calibration certificate or a measuring protocol, which is traceable to national standards in accordance with DIN EN ISO 9001.

Technical Data

Measuring Instrument type		ME 5000 *)	ME 5400	ME 5600
for Piezoelectric Transducers, order no.		385484 A	382004 A	201440 A
for Strain Gauge Transducers,				
for non-contact Transducers				
Operating Mode:				
– Peak Value Display		yes	yes	yes
– Prevailing Torque-Value Display		no	yes	yes
– Measurement Series with Statistics \bar{X} , S		yes (max. 40 series of 100 values each)	yes (up to 1000 values)	yes (up to 100 values)
Total Measuring-Range		see transducer	see transducer	see transducer
Number of Measuring Ranges		depending on measuring system	depending on measuring system	depending on measuring system
Display		LC-Display Alphanumeric 4-lines 16 digits per line	External, standard PC-Monitor	LC-Display graphic Touch Screen
Data Output (for printer or PC)		SUB-D 9-pin RS 232 (9600 Baud)	ASCII-Data CSV-Data JPG. BMP	SUB-D 9-pin Connector RS 232 (9600 Baud)
Connection for Measuring Transducer		8-pin Connector / BNC-Connector	8-pin Connector / BNC-Connector	8-pin Connector / BNC-Connector
Linearity	%	< 1	< 1	< 1
Accuracy	% FS	< ± 1	< ± 1	< ± 1
Electrical Power Supply		Rechargeable Battery	Power Unit 100 up to 240 Volt (50 or 60 Hz)	Power Supply 85 up to 264 Volt (50 or 60 Hz)
Dimensions (WxHxD)	mm	106 x 224 x 40	132 x 84 x 194	225 x 200 x 140
	in.	4 ¹¹ / ₆₄ x 8 ¹³ / ₁₆ x 1 ⁹ / ₁₆	5 ¹³ / ₆₄ x 3 ⁵ / ₁₆ x 7 ⁴¹ / ₆₄	8 ⁵⁵ / ₆₄ x 7 ⁷ / ₈ x 5 ³³ / ₆₄
Weight	kg	1 / 2.2	1.9 / 4.2	2.8 / 6.2

* Software Languages: German/English (Standard)
English/Czech (order no. 202043) please quote when ordering!

Required Accessories:	Connector Cable (see below). Measuring Transducer (see leaflet D 3020 E).		
Connector Cable:			
Measuring Instrument to Measuring Transducer	ME 5000	ME 5400	ME 5600
MP 25 PE, MP 200 PE or MS 25 PE-W	810675 (5 m)	810675 (5m)	810675 (5m)
MP 1000 PE	810629 (1 m)	810629 (1 m)	810629 (1 m)
MP 2 DMS, MP 7 DMS, MP 25 DMS or MP 160 DMS	385493 A (2 m) 385493 B (4 m) 385493 C (6 m)	385493 A (2 m) 385493 B (4 m) 385493 C (6 m)	385493 A (2 m) 385493 B (4 m) 385493 C (6 m)
MP 500 DMS	385486 A (2 m)* 385486 B (4 m)* 385486 C (6 m)*	385486 A (2 m) 385486 B (4 m) 385486 C (6 m)	385486 A (2 m) 385486 B (4 m) 385486 C (6 m)
MS 2 DMS, MS 7 DMS, MS 7 DMS-W or MS 25 DMS-W	385493 A (2 m) 385493 B (4 m) 385493 C (6 m)	385493 A (2 m) 385493 B (4 m) 385493 C (6 m)	385493 A (2 m) 385493 B (4 m) 385493 C (6 m)
V002-E6,3/F6,3, V005-E6,3/F6,3, V010-E6,3/F6,3 or V020-E6,3/F6,3	385486 A (2 m)* 385486 B (4 m)* 385486 C (6 m)*	385486 A (2 m) 385486 B (4 m) 385486 C (6 m)	385486 A (2 m) 385486 B (4 m) 385486 C (6 m)

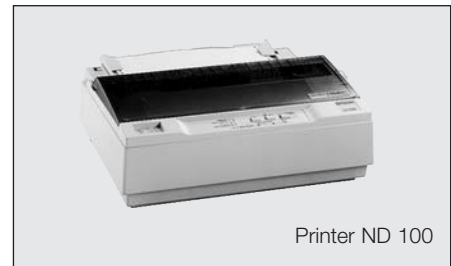
* Additionally required: Power Supply order no. 800827 and Power Supply cable 230/115 V order no. 812587 / 812295

Optional Equipment

For Measuring Instrument	ME 5000	ME 5400	ME 5600
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Software: DFQ-Interface Port for QS-STAT PC Software	order no. order no.	on request 832612	on request —	on request —
Charge Calibrator (for functional test)	order no.	349960 A	349960 A	349960 A
Connector Cable (ME 5000-RS232)	order no.	832415	—	—

Printer	type order no.	ND 40 200715 A	—	ND 40 200715 A	ND 100 823476
Technical Data:					
Print Method		8-pin Printer	—	8-pin Printer	9-pin Printer
Digits per Line		40	—	40	> 100
Print Speed		approx. 2 lines/sec.	—	approx. 2 lines/sec.	approx. 2 lines/sec.
Print Storage		0.5 KB	—	0.5 KB	2 KB
Interface Port		RS 232	—	RS 232	RS 232 / parallel
Electrical Power Supply		5 V	—	5 V	230 V / 50 Hz
Dimensions (W x H x D)	mm in.	160 x 42 x 106 6 ⁵ / ₁₆ x 1 ¹¹ / ₁₆ x 4 ³ / ₁₆	—	160 x 42 x 106 6 ⁵ / ₁₆ x 1 ¹¹ / ₁₆ x 4 ³ / ₁₆	385 x 135 x 300 15 ⁵ / ₈ x 5 ⁵ / ₁₆ x 11 ¹³ / ₁₆
Weight	kg / lbs	0.35 / 0.8	—	0.35 / 0.8	4 / 8.8
Standard Equipment:					
Paper Roll (width 58 mm / 2 ⁹ / ₃₂ in.)	order no.	200716	—	200716	—
Paper		—	—	—	standard
Ribbon	order no.	810686	—	810686	—
Power Unit 100 - 240 V	order no.	200717	—	200717	—
Required Accessories:					
Connector Cable (Measuring Instrument – Printer)	order no.	349938 B	—	349938 B	349938 A



DEPRAG

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