Measurement devices for manual use

for precise highly dynamic torque measurement

- precise highly dynamic torque measurement
- simple and safe handling
- controlled by micro-processor

All measurement devices of the series ME for manual use in combination with our measurement transducer enable precise highly dynamic torque measurement.

Example applications:
- torque setting, monitoring and control of screwdriving tools
- control and calibration of mechanical torque wrenches
- torque testing for stationary screwdrivers directly in the assembly station without removal of the screwdrivers
- inspection and documentation of assembly quality in accordance with standard DIN EN ISO 9001

MEASURING TECHNOLOGY

Operating modes of DEPRAG measurement devices

Our measurement tools can be operated in varying modes:

- For individual measurement with display of the peak value all received measurements are recorded and the highest individual value during the entire measurement period is issued as the measurement result.

- During the mode measurement series the peak values of several individual measurements are automatically summarised in a measurement series. From the measurement series the essential parameters, such as average X and standard deviation S, are calculated.

- Individual measurement with display of the current value, where the current torque measurement is always displayed (see measurement electronic ME5600).
**Functional principle of DEPRAG measurement devices**

Functional principle of the measurement devices with each torque transducer:

- **Piezoelectric transducer**
  The electric charge given off by the transducer is transformed into an analogue measurement signal by a specially calibrated charge amplifier.

- **Strain gauge transducer**
  Measurement devices already have an analogue measurement signal on the transducer.

- **Torque transducer**
  The torque transducer creates output voltage of 0-5 volt, proportional to the torque.

All our measurement devices of the series ME5... and ME6... include measurement connections for the three above-mentioned transducers. Using a high resolution fast AD converter the torque values are also precisely registered and digitally displayed for highly dynamic tightening procedures. The signal preparation is based on the new VDI guideline 2647. Of course all relevant measurement parameters are traceable to national standards. For each calibration you receive the relevant calibration certificate in accordance with DIN 17025. We also offer a comprehensive calibration service for regular inspection of your measurement device. The software on the standard devices enables selection of the measurement unit (metric/inch) as well as the language (German/English). All measurements can be read from the display and can be printed out (see optional accessories page 4) or read via a superior main computer depending on the version.

**Torque measurement device ME5000**

The mobile and compact measurement device ME5000 with integrated battery allows torque measurement independent of location or power supply. E.g. ideal to ascertain a screwdriver’s optimal setting value directly on the assembly station. A docking station and battery charger are included with the ME5000. The registered measurement values can be transmitted via a serial port on the docking station to a PC or printed on printer ND 40 (see accessories).

**Torque measurement device ME5500**

The measurement electronic ME5500 for connection to a PC is the ideal measurement device for stationary laboratory work stations. As well as all torque measurement functions, this software also enables you to carry out detailed screw analysis. This can display the complete cycle procedure "torque over a period of time" for a measurement series. The required graph analysis program is included as standard. The operation of this device, the display and printing of measurement values and the data processing is carried out directly on your PC, which is connected to the measurement device by a USB 2.0 port. Your advantage: You can flexibly process large amounts of data (e.g. with a normal statistic program) – all data is available on your PC as an ASCII-file. The measurement electronic ME5500 can be used on Windows System 7, 8 and 10.

**Torque measurement device ME5600**

The measurement electronic ME5600 is the ideal measurement device for use on a mobile measuring station or in a measurement laboratory to carry out inspection and adjustment of screwdriving tools of all kinds on location. Using the measurement electronic ME5600 the current torque value can be recorded and displayed. Another great advantage of the measurement electronic is the high resolution of the measurement data and the recording of large measurement series of up to 100 values. All values are graphically displayed on the LC display. The device can be operated easily using the touch screen. Data can be printed on various printers (see accessories).

**Torque measurement device ME6000 / ME6100**

The measurement electronic ME6000 (measuring range up to 480 N·m) and the ME6100 (measuring range up to 1000 N·m) with a linearity of < 0.5% and accuracy of < ±0.5% FS have been added to the DEPRAG portfolio of torque measurement devices. They are high quality precision measurement devices which even have double the accuracy of the reliable ME5500 and are highly recommended for tasks where measurement accuracy of 0.5 % is desirable. This is imperative for torque below 0.5 N·m (for DEPRAG screwdriver families NANOMAT and MICROMAT).

The high resolution system of 15 bit is suitable for all torque transducers. Small measurement ranges can be measured with high precision over a large range (min. 1:10).

As well as all functions for torque recording the software can also carry out detailed software analysis, which displays the cycle procedure “torque over period of time” of a measurement cycle. The required graph analysis program is included as standard. The software can be used on 32 and also 64 bit Windows Systems.

The operation of this device, the display and printing of measurement values and the data processing is carried out directly on your PC, which is connected to the measurement device by a USB 2.0 port. Your advantage: You can flexibly process large amounts of data (e.g. with a normal statistics program) – all data is available on your PC as an ASCII-file.
**Required Accessories:**

<table>
<thead>
<tr>
<th>Connector cable to connect</th>
<th>Measuring instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ME5000</td>
</tr>
<tr>
<td>Measuring Transducer</td>
<td>810675 (5 m)</td>
</tr>
<tr>
<td>Piezo electric (PE)</td>
<td>810629 (1 m)</td>
</tr>
<tr>
<td>Measurement device</td>
<td>385492A (2 m)</td>
</tr>
<tr>
<td>Measurement platform/wrench:</td>
<td>385492B (4 m)</td>
</tr>
<tr>
<td>MP1000PE</td>
<td>385492C (6 m)</td>
</tr>
<tr>
<td>Strain gauge (DMS)</td>
<td>385486A (2 m)*</td>
</tr>
<tr>
<td>Measurement device</td>
<td>385486B (4 m)*</td>
</tr>
<tr>
<td>Measurement platform/wrench:</td>
<td>385486C (6 m)*</td>
</tr>
<tr>
<td>MS2DM5, MS7DM5, MS7DM5-W</td>
<td>385493A (2 m)</td>
</tr>
<tr>
<td>Or MS2DM5s</td>
<td>385493B (4 m)</td>
</tr>
<tr>
<td>MS2DM5-DS</td>
<td>385493C (6 m)</td>
</tr>
<tr>
<td>Torque transducer (strain gauge, non-contact):</td>
<td>385486A (2 m)*</td>
</tr>
<tr>
<td>V002-E6.3/F6.3, V006-E6.3/F6.3, V010-E6.3/F6.3 or V020-E6.3/F6.3</td>
<td>385486B (4 m)*</td>
</tr>
<tr>
<td>Measuring instrument</td>
<td>385486C (6 m)*</td>
</tr>
</tbody>
</table>

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

**Part no. 385484A 111604A 201440A 385565A 106402A**

**Operating mode:**
- Peak value display: yes for ME5000, ME5500, ME5600, ME6000, ME6100
- Prevaling torque-value display: no for ME5000, yes for ME5500, ME5600, ME6000, ME6100
- Measurement series with statistics X, S (max. 40 series of 100 values each): yes for ME5000, yes (up to 1000 values) for ME5500, ME5600, ME6000, ME6100

**Total measuring range:** N·m depending on measuring system

**Number of measuring ranges:** depending on measuring system

**Display:**
- LC-display alphanumeric 4-lines 16 digits per line
- External, standard PC-Monitor
- LC-display graphic Touch screen
- External, standard PC-Monitor

**Data output**
(for printer or PC)
- SUB-D 9-pin RS 232 (9600 Baud)
- ASCII-Data CSV-Data JPG, BMP
- SUB-D 9-pin RS 232 (9600 Baud)
- ASCII-Data CSV-Data JPG, BMP

**Connection for measuring transducer**
- 8-pin connector / BNC connector
- Sub-D 9 pin
- RS 232 (9600 Baud)
- ASCII Data CSV-Data JPG, BMP

**Linearity:** %
- < 1

**Accuracy:** % FS
- < ± 1

**Electrical power supply:**
- Power unit
- 12V
- 85 to 264 Volt (50 or 60 Hz)
- Power unit
- 12V

**Dimensions (W x H x D)**: mm
- 106 x 224 x 40
- 132 x 84 x 194
- 225 x 200 x 140
- 132 x 84 x 194
- 132 x 84 x 194

**Weight**:
- kg / lbs
- 1 / 2.2
- 1.9 / 4.2
- 1.9 / 4.2
- 1.9 / 4.2
- 1.9 / 4.2

**Part number:**
- 385484A 111604A 201440A 385565A 106402A

**Technical Data Measurement electronic ME5000/ME5500/ME5600/ME6000/ME6100**

<table>
<thead>
<tr>
<th>Measuring Instrument Type</th>
<th>Measuring instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME5000 *)</td>
<td>385484A</td>
</tr>
<tr>
<td>ME5500</td>
<td>111604A</td>
</tr>
<tr>
<td>ME5600</td>
<td>201440A</td>
</tr>
<tr>
<td>ME6000 *)</td>
<td>385565A</td>
</tr>
<tr>
<td>ME6100 *)</td>
<td>106402A</td>
</tr>
</tbody>
</table>

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

1) Measuring Instrument ME6000 in connection with MP1000PE: measuring range up to 480 N·m

1) Measuring Instrument ME6100 in connection with MP1000PE: measuring range up to 1000 N·m
## OPTIONAL EQUIPMENT

<table>
<thead>
<tr>
<th>for Measuring Instrument</th>
<th>ME5000</th>
<th>ME5500</th>
<th>ME5600</th>
<th>ME6000/ME6100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DFO-Interface for QS-STAT</td>
<td>on request</td>
<td>on request</td>
<td>on request</td>
<td>on request</td>
</tr>
<tr>
<td>PC-software</td>
<td>Part no. 832612</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Connector cable</td>
<td>Part no. 832415</td>
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</table>

<table>
<thead>
<tr>
<th>Printer</th>
<th>Type</th>
<th>Part no.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ND40</td>
<td>200715A</td>
</tr>
<tr>
<td></td>
<td>ND40</td>
<td>200715A</td>
</tr>
<tr>
<td></td>
<td>ND350</td>
<td>112462A</td>
</tr>
</tbody>
</table>

### Technical Data:

<table>
<thead>
<tr>
<th>Print method</th>
<th>8-pin Printer</th>
<th>9-pin Printer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digits per line</td>
<td>40</td>
<td>&gt; 100</td>
</tr>
<tr>
<td>Print speed</td>
<td>approx. 2 lines/sec.</td>
<td>approx. 2 lines/sec.</td>
</tr>
<tr>
<td>Interface port</td>
<td>RS 232</td>
<td>RS 232, parallel</td>
</tr>
<tr>
<td>Paper roll width</td>
<td>114 mm (4⅞ in.)</td>
<td>114 mm (4⅞ in.)</td>
</tr>
<tr>
<td>Weight</td>
<td>0.35 / 0.8 kg / lbs</td>
<td>0.35 / 0.8 kg / lbs</td>
</tr>
</tbody>
</table>

### Included in delivery of printer:

- Paper roll (width 114 mm /4⅞ in.) Part no. 200716
- Power Unit 100 - 240 V Part no. 200717
- Connector cable

### Required accessories for printer:

- Connector cable (measuring instrument – printer) Part no. 349938B

At DEPRAG, we are committed to constantly improving our software solutions. To harness these benefits, we recommend regularly updating to the latest edition. For more information, please contact our service department at service@deprag.de.