

# Technical Data / specification

## General:

Display ..... 4 x 20 character LC display  
Measuring rate .....  $\leq 1$  kHz  
Accuracy .....  $<0,1$  % f.s.  
Min./max. acquisition ..... 2 ms  
Reaction on off-limit checking ..... 2 ms  
Keyboard membrane keypad with 7 keys .....  
Working temperature range .....  $0^{\circ}$  bis  $60^{\circ}\text{C}$   
Measured value storage ..... ring buffer for up to 2000 measured values  
Menu-language ..... German / English  
Input power ..... 115VAC, 230VAC, 50-60 Hz

## Sensor inputs:

Torque and force transducer ..... strain gauge full bridge  $\cdot 0,5\text{mV} - 3,5\text{mV}$ , 4-/6-conductor techniques  
Torque transducer ..... frequency input  $\leq 150\text{kHz}$ ,  $\pm 5\text{VDC}$ ,  $\pm 10\text{VDC}$   
Speed input ..... TTL,  $\leq 250$  kHz  
Angle of rotation input ..... TTL, quadrature input,  $\leq 50$  kHz

## Control signals, analog output, interface:

8 digital logic I/O signal each ..... output signal: open collector; input signal: TTL or 24VDC  
Analog outputs ..... 2,  $\pm 10\text{VDC}$   $\leq 10$  kHz actualization rate  
communication port 1 ..... 1 RS 232; with up to 115 kbp  
communication port 2 (in preparation) ..... Ethernet 10 / 100 Base -T  
Housing ..... aluminium  $\cdot$  height 2 HE, width 260 mm  
Weight ..... approx 2 kg

## Scope of delivery instruction manual:

Order example:  
4600-UMV 2000-MnA, part. # 18523; part. # 18690 (115 V.) ... for torque-/speed-/angle of rotation measurement  
.....and/or force measurement  
4600-UMV 2000-MnAP, part. # 18524; part # 18691 (115 V.) ... for torque-/speed-/angle- of rotation measurement  
.....and/or force measurement  
.....and measurement of mechanical power

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UMV 2000

Supply and evaluation instrument  
for torque transducers  
and force transducers



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# Dr. Staiger Mohilo **UMV 2000**

## Special features

- Display with indication of exact measured data for torque, speed, angle of rotation, force and mechanical power
- Units: Nmm, Ncm, Nm, kNm, N, kN, W, kW, MW
- 4x20 character display
- Menu-driven operation
- High measuring accuracy
- High scan rate
- Software low-pass filter
- Memory with up to 2000 measured values
- Min./max. capture and limit value monitoring
- Soft- and hardware trigger functions
- Calibration function
- RS 232 Communication port
- Scaled analog outputs

## Application

The instrument is ideal for applications in process measurement techniques and for the use in research and laboratory environments.

All sensors with strain gauge techniques and sensors with standardized voltage output can directly be connected. The simple programming with the software provides that the instrument can be used for the evaluation of torque-/speed measurements or torque-/angle of rotation measurements in industrial environments.

The applications are manifold:

The required power can be easily determined by input torque and speed of an actuated unit. This includes generators, pump systems, gear-boxes, engines, drive shafts ect. which determine the efficiency factor when transmission components or systems are evaluated. This type of analyzing is normally performed on couplings, brakes, gear-boxes, engines and turbines.

For process control, the instrument is used to measure and test screwings, or for the verification of the breakpoint at torque wrenches.

Additional use in function control in assembly procedures, where the torque is rated as function of the angle rotation. For example the test of seat adjustments

## Description

The desktop model is designed for 115 VAC and 230 VAC input power. All connections are pluggable. The instrument is menu-driven and therefore very easy to configure and program, and can quickly be adjusted to the measuring task.

Any functions of the device (taring, peak value storage, mean value operation, limit setting, measuring duration, pre- and post-trigger, calibration, volume of indications, unit and interface) are simply adjustable.

Up to 20 sensor parameter sets can be internally stored in the non-volatile Flash-memory.

and inspection of hinges fittings.

The result of the assessments is available as digital output, i.e. as OK or NOK logic output.

The measuring accuracy, extreme value measurement and storage of measured values speak for the use in trial and laboratory fields and in research environment.

# Examples / design:

## Measurement of torque, speed and mechanical power

Electric motors, gear-boxes, fans, combustion engines, compressors, easy movement at lubrication pumps and radiators, crankshaft drives and camshafts.

## Test of friction clutches for pneumatic and electronic screwdrivers

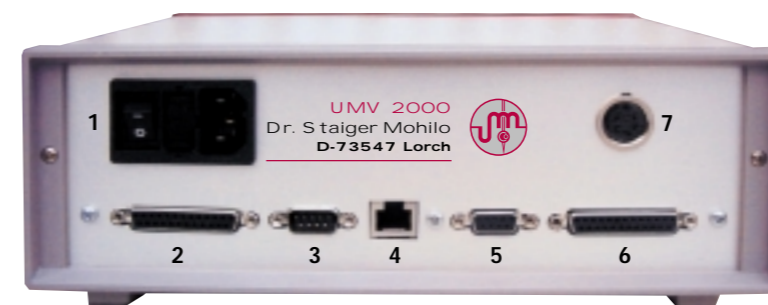
Viscosity measurements and tests of torque wrenches.

## Measurement of preloads and clamping forces

Verification of mating and press-fit force. Test of contactors and push buttons.



## Pin assignment and connection diagram:



- 1 power 230 VAC / F 1 200 mA T
- 2 digital- input/output
- 3 RS 232 communication port
- 4 T Ethernet port
- 5 analog output
- 6 sensor
- 7 IT torque sensor (option)