

ControlMonitor CoMo Torque

Evaluation Instrument for Torque Sensors

Type 4700A...

The evaluation instrument CoMo Torque Type 4700A... is ideal for industrial use and for research and development applications. Torque sensors with strain gage technology and standardised voltage output or frequency output can be connected directly.

- Display with indication of exact measured data for torque, speed, angle of rotation, force and mechanical power
- Units: N·mm, N·cm, N·m, kN·m, N, kN, 1/min, W, kW, MW, degree as well as English/American units
- 4x20 character display
- Multiple menu language operation
- High measuring accuracy <0,05 %
- High scan rate 10 kHz
- Low-pass filter (filter off, 1 Hz ... 5 kHz)
- Memory with up to 5 000 measured values, each channel
- Min/max capture and limit value monitoring
- Soft- and hardware trigger functions
- Calibration function
- Can be remoted via USB or RS-232C
- Scaled analog outputs

Description

The simple parameterisation allows it to be used in production when evaluating torque/revolution measurements or torque/angle of rotation measurements. The intuitive menu of the Type 4700A... allows it to be quickly adapted to new measurements and inspection tasks. Settings can be made easily for all functions, such as taring, saving peak values, average determination, setting limits, measurement duration, pre- and post triggers, calibration, scope of display, units, and the interface. Up to 20 parameter records can be stored internally in the non-volatile flashmemory.

The desktop unit can be operated with a supply voltage of 115 VAC or 230 VAC. All connections are plug-in.



Application

The industrial usages are numerous and various:

- Determination of the performance of powered equipment using torque input and revolution
- Design of transfer components or systems by determining the efficiency factor (for example, for clutches, brakes, gear boxes, motors and turbines)
- Process control when screwing or verifying the inflexion point for torque wrenches
- Function control during assembly, if the torque is evaluated in dependence of the angle of rotation; for example, when checking seat adjustments and hinges. The result of the evaluation is shown on the digital display as an OK or NOK signal

Regarding the precision of measurements, logging of extreme values and the measured data storage, the Type 4700A... is also suitable for use in research and development.

Technical Data

General

Measuring rate	kHz	≤10
Limit frequency	kHz	≤1
Accuracy	% f.s.	<±0,05
Min./max. peak detection	ms	1
Reaction on threshold exceeding	ms	1
Operating temperature range (rated temperature range)	°C	10 ... 60
Service temperature range	°C	-10 ... 60
Storage temperature range	°C	-25 ... 80
Measured value storage	ring buffer for up to 5 000 measured values	
Input power	VAC	115, 230
	Hz	50 ... 60
Housing material	Aluminum	
Dimensions		
width	mm	260
height	HE	2
Weight	kg	≈2

Display

4x20 character-LC display	max. 7-digit per value
Keyboard	membrane keypad 7 keys
Menu language	German/English/French

Sensor Inputs

Torque and force transducer		
strain gage full bridge	mV/V	0,5 ... 3,5
4-/6-conductor techniques		
Torque transducer	VDC	±5
	VDC	±10
Frequency	kHz	≤300
Speed input	kHz	TTL ≤300
Angle of rotation input	kHz	TTL ≤300

Control Signals, Analog Output, Interface

8 digital logic I/O signal each		
output signal		open collector
input signal		TTL or 24 VDC
Analog output 1:		
torque/load	VDC	±10
with update rate	kHz	10
Analog output 2:		
torque/speed/angle	VDC	±10
with update rate	kHz	1
Analog output 3:		
mechanical rating	VDC	±10
with update rate	kHz	1
Interface		USB 2.0
		RS-232C
Communication port	kbps	≈115

Typical Application

Measuring

Torque Sensor



Type 4501A...

Connecting

KSM018537 / KSM185370



KSM018535 / KSM185350

Analyzing

ControlMonitor CoMo Torque
Evaluation Instrument for Torque Sensors

Type 4700A...

Torque Sensor



Type 4502A...

KSM018538 / KSM185380

Torque Sensor

Torque Measuring Flange



Type 4503A...

Type 4504A...

KSM018642 / KSM186420

Typical Application

Measurement of Torque, Speed and Mechanical Power

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

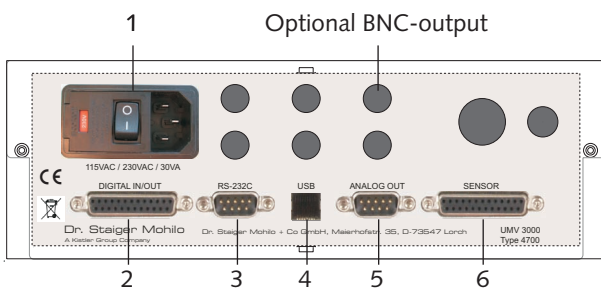
Test of Friction Clutches for Pneumatic and Electronic Screwdrivers

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 input with voltage selector
115/230 V 200 mA T
- 2 Digital input/output lines
- 3 RS-232C
- 4 USB connector
- 5 Analog output signals
- 6 Sensor connector

Included Accessories

- Power connector

Type/Art. No.

KSM007252

Optional Accessories

- Type 4700A... – analog output connection cable, 5 m
- Connection cable analog, 2,5 m, 12 pin KSM186420–2,5 for Type 4700A... to Type 4503A..., 4504A...
- Connection cable analog, 2,5 m, 12 pin KSM185380–2,5 for Type 4700A... to Type 4502A...
- Connection cable analog, 2,5 m, 6 pin KSM185350–2,5 for Type 4700A... to Type 4501A... Q/R (respectively force)
- Connection cable strain gage with angle, 2,5 m, 12 pin KSM185370–2,5 for Type 4700A... to Type 4501A... QA

See **data sheet** KSM_000-615 for other cables.

Ordering Key

Operation voltage

230 V AC	P1
115 V AC	P2

Analog BNC-output

Without	00
For voltage	UA
For current	IA
For voltage a. speed/rotation angle	UN

Type 4700A

Order example:

Type 4700AP1UN

ControlMonitoring CoMo Torque, evaluation instrument for torque sensors **Type 4700A...**, operation voltage **P1**: 230 V AC, analog BNC-output **UN**: for voltage and speed/rotation angle