

Multipurpose Torque Meter Type GMV2

- Tool Testing
- Production Supervising
- Documentation conforming to DIN EN ISO 9001
- Quality Assurance
- Test Bench Evaluation



Description:

The GMV2 is a microprocessor-controlled supply and display unit for various applications in torque-measurement. In screwing sector as well as on test benches in laboratory sector, with appropriate sensors detected measurement values for torque, angle, speed and power can be displayed, evaluated conforming to pre-set limits and stored.

The handling using a self-explanatory menu is carried out in simple steps. Using a torque transducer with integrated recognition chip the sensor data will be transmitted automatically into the parameter set by connecting the transducer to GMV2.

For better distinction the parameter-sets and data-sets can be named with text. The input of data-set names can happen optional using a bar code scanner. The access to the general settings can be limited by using passwords in three levels. The measured values will be internal stored in combination with date and time and they can be printed out by an external printer or transmitted to an existing EDP. External controlling of the unit is possible using control inputs. Optical signals or for example the shut down of an electric screwdriver with a separate power section can be controlled by switched outputs. Customized functions can be realized on demand.

Technical Data:

Supply Voltage:		Option - BATTERY OPERATION:	
mains voltage:	100V – 240V/50Hz – 60Hz	Supply Voltage:	Accu 2x6V/ 4Ah
Operating mode:	mains operating and charging simultaneously	Operating time at	
		Continuous Operating:	ca. 8h (with sensor)
ACTIVE SENSOR FEEDING:		Option - DIGITAL INPUT	
for Torque Transducer	12V DC / 200mA		For Sensor Type DRFDxx
ACTIVE INPUT:		PASSIVE SENSOR FEEDING	
Input Sensitivity:	programmable		7 V DC
Input Resistance:	from $\pm 1,25V$ to $\pm 10V$		$\geq 350\Omega$
Zero Adjustment Range:	1 M Ω		
	ca. $\pm 7\%$ of Full Scale	Option - PASSIVE INPUT	
CONVERSION:		Input Sensitivity:	programmable
Impulse Rise Time:	10%-90%: 0,25ms		from $\pm 0,5$ to ± 4 mV/V
Measuring Frequency:	3 KHz Sine Pulse max.	Zero Adjustment Range:	ca. $\pm 7\%$ of Full Scale
		Option - ANGLE MEASUREMENT	
ACCURACY:		Input Signal:	2 Channels
Tracking Measurement:	$\leq 0,1\% \pm 2$ Digit		360 Pulses / Revolution with approx. 90° Phase Shift
Peak Measurement:	$\leq 0,3\% \pm 2$ Digit	Resolution:	1°
Torque Wrench Measurement:	$\leq 0,3\% \pm 2$ Digit	Counting Range:	$\pm 6000^\circ$
Speed Measurement:			
n ≤ 10000 min-1 :	$\leq \pm 2$ Digit	Option - BARCODESCANNER	
n ≤ 20000 min-1 :	$\leq \pm 3$ Digit	Manual Scanner 80 mm	Code 39
Angle:	$< \pm 1^\circ$		
Zero Point:	$\leq 0,05\%$	Option - CONTROL INPUT AND OUTPUT	
STORE:		2 Relay-Outputs:	IO; NIO
	50 Measurement Programs	U max :	25 V AC / 30 V DC
	1000 Measurement values	I max :	1 A
DISPLAY:		Switching Delay:	$\leq 1,6$ ms
	Graphics-LCD	2 Opto-coupler Outputs:	Shut down; Customized
	with 240 x 64 Pixels	U max :	30 V DC
DATA OUTPUT:		I max :	150 mA
RS 232 Interface:	9 pin Connector (DEE)	Saturation Voltage:	< 2 V (100 mA)
	1200 – 19200 Baud		$< 1,5$ V (50 mA)
			< 1 V (2 mA)
OPERATING TEMPERATURE:	0 - 45°C	Switching Delay:	$\leq 0,2$ ms
HUMIDITY :	$< 75\%$	Switch Off Time:	$\leq 0,5$ ms
PROTECTION:	IP 40 conform to DIN 40050	2 Opto-coupler Inputs:	Store; Print; Clear; Zerodaj.
DIMENSIONS:	320x115x280mm (BxHxT)	Signal level ON:	4 V ...30 V / 3 mA
WEIGHT:	ca. 5,5 kg with accumulator	Signal level OFF:	$< 1,5$ V
COLOR:		Option – VOLTAGE OUTPUT	
Housing:	RAL 7035 (light grey)	Voltage Output:	0 - $\pm 5V$ Ri = $< 1\Omega$,
Border:	RAL 7030 (light grey)	Short Circuit Current:	10mA
Front Design:	RAL 3002 (crimson)		
		AVAILABLE ACCESSORIES:	
		Measuring Cables, Torque Transducers, Printers,	
		Switchbox, Holder for Bits and Socket wrenches	
		Software GMV2-PC-Trans	
		Seriell to USB - Converter	

Transfer of measured values to EDP with Software GMV2-PC-Trans:

Microsoft Excel - Beispiel-PC-Trans

	A	B	C	D	E	F	G	H	I	J	K	L
1	PAR	DS	SP	Drehmoment		Md-GW min	Md-GW max	Winkel /Grad	Wl.-GW min	Wl.-GW max	Uhrzeit	Datum
2	2	1	1	4,60 Nm		4,500	4,800	28,0	27	30	15:10	03.02.03
3	2	1	2	4,64 Nm		4,500	4,800	28,0	27	30	15:10	03.02.03
4	2	1	3	4,68 Nm		4,500	4,800	28,0	27	30	15:10	03.02.03
5	2	1	4	4,69 Nm		4,500	4,800	28,0	27	30	15:10	03.02.03
6	2	1	5	4,73 Nm		4,500	4,800	28,0	27	30	15:10	03.02.03
7	2	1	6	4,59 Nm		4,500	4,800	29,0	27	30	15:10	03.02.03
8	2	1	7	4,73 Nm		4,500	4,800	29,0	27	30	15:11	03.02.03
9	2	1	8	4,74 Nm		4,500	4,800	29,0	27	30	15:11	03.02.03
10	2	1	9	4,72 Nm		4,500	4,800	27,0	27	30	15:11	03.02.03
11	2	1	10	4,72 Nm		4,500	4,800	27,0	27	30	15:11	03.02.03
12	2	2	1									
13	2	2	2									
14	2	2	3									
15	2	2	4									
16	2	2	5									

Microsoft Excel - Beispiel-PC-Trans

nächste Prüfung

Messwert-Statistik

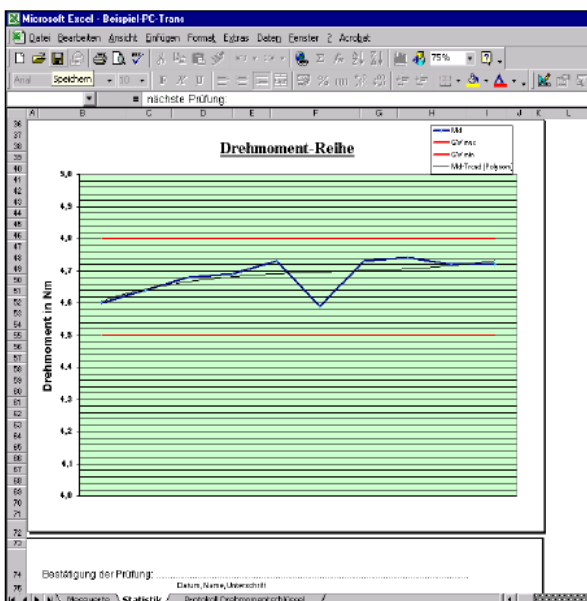
Werkzeug

Fabrikat: Pa. Hirschack Serien-Nr.: 079720002
 Typ: E-Schrauber Inventarnummer: 0815
 Geprüft Datum: 26. Dez. 01 Toleranz: 15,30%
 Prüfintervall: 1 Jahr nächste Prüfung: 24. Dez. 02

Reihe: 2 von 05 bis 05 Datenzeile: 16

Anzahl n:	10	Anzahl Datenzeile:	1
Mittelwert \bar{x} :	4,604 Nm	Anzahl NG / %:	10 / 100,00%
Bereich R:	0,169 Nm	Anzahl NGmax / %:	0 / 0,00%
MS-Max:	4,740 Nm	Anzahl NGMin / %:	0 / 0,00%
MS-Min:	4,590 Nm	Anzahl NGW / %:	0 / 0,00%

Standardabwe. (S): 0,053 Nm
 $\pm 3 S$: + 0,158 Nm Cn / Cp: 0,800
 Sigma (S): 0,059 Nm Cpk / Cpl: 0,68522
 68,9 %: ± 0,167 / ± 3,6%



ETH messtechnik gmbh **Werkzeugüberprüfung**

Bezeichnung	Druckluftschrauber	Schraubertyp	Cleco 5RSA 10BQ
Werkzeugnummer	466789	Hersteller	Cooper-Tools
Einsatzort	Montageband	Seriennummer	123456
Schraubfall	Hart	Einstellbereich	0,4 - 3,5 Nm
Kalibrierintervall	Wöchentlich	Leerlaufdrehzahl	660

Messwerte

Messwerte einlesen

	Drehmoment	Drehwinkel	Drehmoment	Drehwinkel
Sollwert	4,65 Nm	29 °	Messwert 1	4,60 Nm 28 °
Toleranz	3,23 %	5,3 %	Messwert 2	4,64 Nm 26 °
Oberer Grenzwert	4,80 Nm	30 °	Messwert 3	4,68 Nm 20 °
Unterer Grenzwert	4,50 Nm	27 °	Messwert 4	4,69 Nm 28 °
Maximalwert	4,74 Nm	29 °	Messwert 5	4,73 Nm 28 °
Minimalwert	4,59 Nm	27 °	Messwert 6	4,59 Nm 29 °
Cmk/Cpk	0,70	0,50	Messwert 7	4,73 Nm 29 °
Mittelwert	4,68 Nm	28 °	Messwert 8	4,74 Nm 29 °
Abweichung	0,09 Nm	2 °	Messwert 9	4,72 Nm 27 °
± 3 Sigma	0,17 Nm	2 °	Messwert 10	4,72 Nm 27 °

Messmittel

Sensor	DRFS-I-10	Messgerät	GMV2
Inventarnummer	245912	Inventarnummer	36985
Hersteller	ETH	Hersteller	ETH
Messbereich	10 Nm	Messbereich	10 Nm
Toleranz	<0,15%	Toleranz	<0,3%
Seriennummer	369852	Seriennummer	123654
Kalibrierintervall	1 Jahr	Kalibrierintervall	1 Jahr
Kalibrierzertifikat Nr.	123456	Kalibrierzertifikat Nr.	36889
Nächste Prüfung	06.01.04	Nächste Prüfung	08.01.04

Prüfergebnis

Toleranz eingehalten: Ja

Nächste Prüfung am: 26.02.03

Datum: 19.02.03 Uhrzeit: 15:27

Name des Prüfers: Klenk

Unterschrift:

Order Code: GMV2-PC-Trans
System requirements: Windows 98 / ME / NT / 2000 / XP
 Office 2000