

M40079.V30 Torque measuring unit M40079.V40 + Radial / Axial force measurement

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Please note that some functions and adjustments described in this manual may not be available for every model or in all program releases.

1. Functions

1.1 Measuring task

The torque measuring unit M40079.V30/V40 stores the torque value average $X_{avg} = ((MAX+MIN)/2)$ and the start-torque value Max (OPTION) during the measuring cycle. For the torque, the overstepping and the undercut and for the start-torque the overstepping of the control limits is checked and classified.

M40079.V40: The radial / axial force is simultaneously checked for the overstepping and the undercut of the control limits.

In addition, an automatic zero-point correction will be carried out during the rotation without any piece, when an AUTOZERO cycle is running. During this cycle, the measured values will be taken as offset correction for all following measuring cycles.

The calibration values for up to 32 different models may be stored power failure-proof in the unit. The selection of the actual model will be done by the PLC.

1.2 Display of measuring results

The measured value of each tested characteristic is displayed as numeric value. In addition, the result of the classification, i.e. GOOD / NOT GOOD, is displayed.

Furthermore, the signal sequence is displayed in the measurement window:

- chart for the course of the start-torque (OPTION)
- chart for the course of the torque
- M40079.V40: chart for the course of the radial / axial force

chart axes standard version: X-axis: time; Y-axis: torque

chart axes version A: X-axis: rotation angle; Y-axis: torque

2. Construction

- USB connection for external storage device
- PLC parallel interface via optocoupler or PLC profibus interface
- 1x strain gauge measuring value input, M40079.V40: 2x analogue voltage input force
- analysis software

The measuring unit M40079.V30/V40 is available with the following measuring computers:

Compact Measuring Computer A&V 8861 for control cabinet installation on top hat rail

without monitor, with VGA output, **webserver function (see below)**:

in top hat rail case WxHxD approximately 335x133x200,

weight 3kg, power supply 24VDC

Measuring computer A&V 8817.653.0 / A&V 8817.655.0 in table case

with 10,4" colour monitor with touchscreen, ext. VGA output

in table case WxHxD 335x200x220,

weight 5kg, power supply 115/230VAC 50/60Hz

Webserver function for remote control:

The unit has got a human-machine interface and acts as an internet server with an individual address. Status information as well as inputs and outputs are not carried out on the device, but via an external computer via ETHERNET interface and a browser program, e.g. Internet Explorer. The measuring device may be displayed through the PC browser program by entering its address. The measuring units contain their own firewall in order to repel unauthorized access via the ETHERNET interface.

3. Connection elements

Back of case:

Type 1 (Control interface PLC profibus 4-Byte):



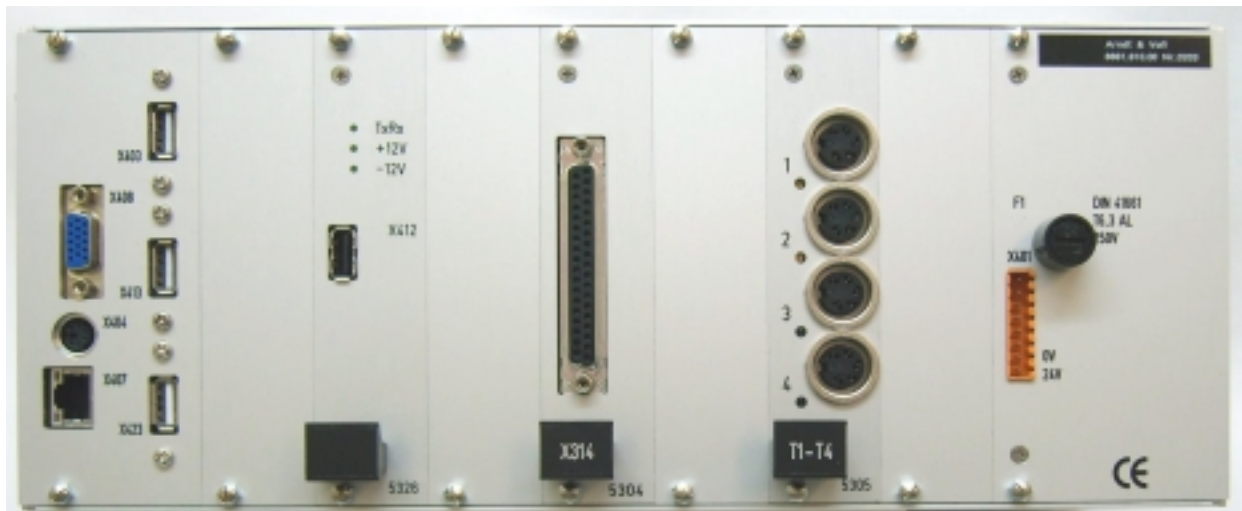
X408	15-pole plug MIN D	Output VGA monitor
X404	PS-2 socket	Keyboard/mouse input
X407	RJ45 socket	Ethernet interface
X403	USB socket	USB connection
X413	USB socket	USB connection
X423	USB socket	USB connection
X412	Internal USB	Test socket (DO NOT USE)
X312	9-pole plug MIN D	Control inputs/outputs profibus
T1-4/1	5-pole socket 680	Input torque gauge bar
T1-4/3-4	5-pole socket 680	M40079.V40: inputs force signal
X401	8-pole plug	Power supply 24V DC

Type 2 (Control interface PLC Profibus 128-Byte):



X408	15-pole plug MIN D	Output VGA monitor
X404	PS-2 socket	Keyboard/mouse input
X407	RJ45 socket	Ethernet interface
X403	USB socket	USB connection
X413	USB socket	USB connection
X423	USB socket	USB connection
X412	Internal USB	Test socket (DO NOT USE)
X312	9-pole plug MIN D	Control inputs/outputs profibus
T1-4/1	5-pole socket 680	Input torque gauge bar
T1-4/3-4	5-pole socket 680	M40079.V40: inputs force signal
X401	8-pole plug	Power supply 24V DC

Type 3 (Parallel interface to PLC):



X408	15-pole plug MIN D	Output VGA monitor
X404	PS-2 socket	Keyboard/mouse input
X407	RJ45 socket	Ethernet interface
X403	USB socket	USB connection
X413	USB socket	USB connection
X423	USB socket	USB connection
X412	Internal USB	Test socket (DO NOT USE)
X314-1	6-pole socket 680	Only with version A: input angle sensor
T1-4/1	5-pole socket 680	Input torque gauge bar
T1-4/3-4	5-pole socket 680	M40079.V40: inputs force signal
X401	8-pole plug	Power supply 24V DC

Type 4 (Control interface PLC Profinet 128-Byte):



X408	15-pole plug MIN D	Output VGA monitor
X404	PS-2 socket	Keyboard/mouse input
X407	RJ45 socket	Ethernet interface
X403	USB socket	USB connection
X413	USB socket	USB connection
X423	USB socket	USB connection
X412	Internal USB	Test socket (DO NOT USE)
X 312	2x RJ45 socket	Control inputs/outputs profinet
T1-4/1	5-pole socket 680	Input torque gauge bar
T1-4/3-4	5-pole socket 680	M40079.V40: inputs force signal
X401	8-pole plug	Power supply 24V DC

4. Programming

Switch the power ON. After loading the program, the unit is in the operation mode AUTOMATIC and ready for use. In order to make entries, the operation mode needs to be switched to SETUP by entering the password.

The display shows the key assignment of the subfunctions:

- F1 Settings
- F2 Save measuring values to USB storage device
- F3 Save chart to USB storage device
- F4 Backup/restore settings
- F5 AUTO/SETUP
- F8 Set zero
- F9 Chart ON/OFF

F5 AUTO/SETUP Selection of operation modes SETUP or AUTOMATIC

By pressing the button F5, the input window for entering the password is opened.

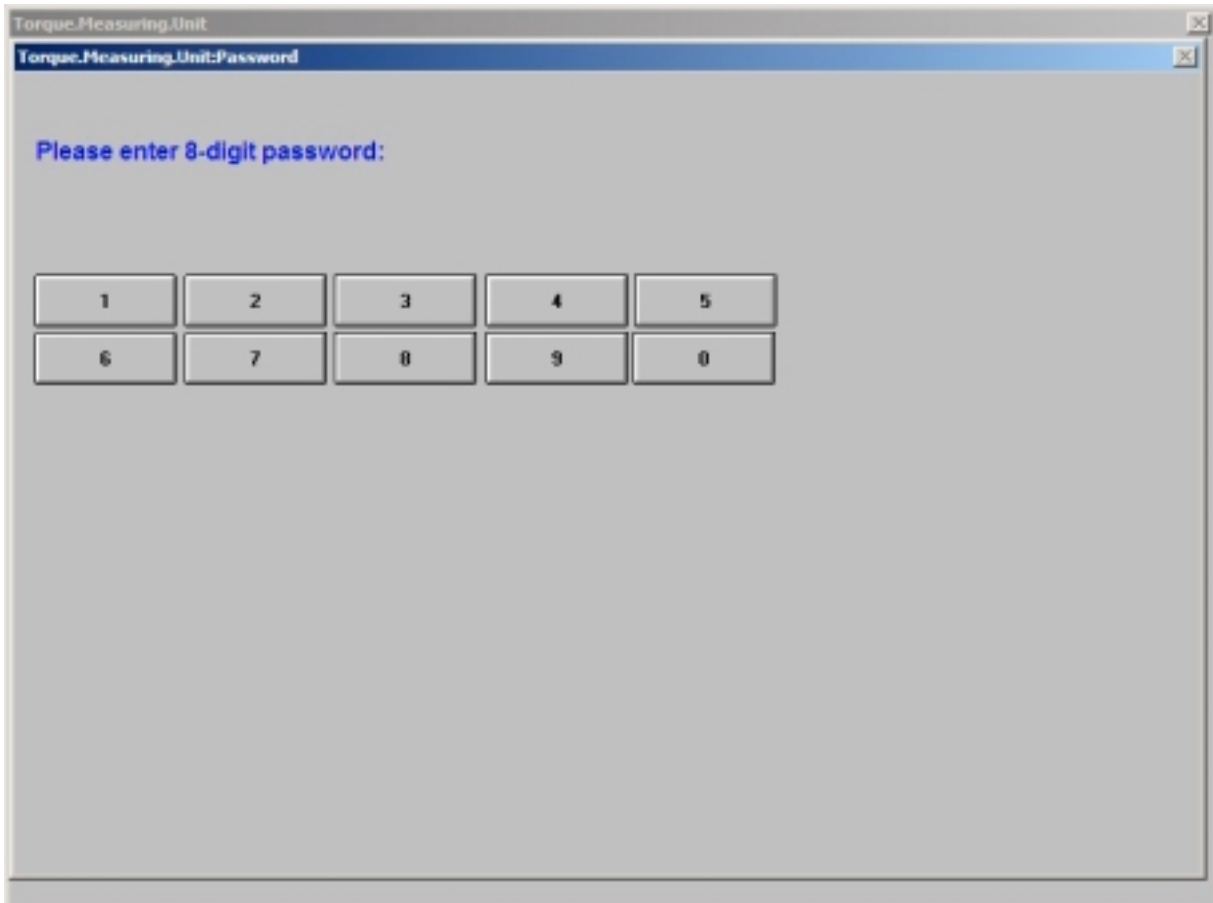
The screenshot displays the 'Torque Measuring Unit' software interface. The window title is 'Torque Measuring Unit'. The interface is divided into several sections:

- Inputs:** Includes 'Measuring Left', 'Measuring Right', 'Running Autozero', and 'Erase', each with a radio button.
- Settings:** Contains a table for 'Drawing no.' (026.160.008.617-02) and 'Description' (Pendelstütze BMW). Below this is a table for 'No. of values', 'Job number' (0042787401), and 'Workstation' (11111). Further down are tables for 'Autozero R' (MAX R, MIN R, Xavg R) and 'Autozero L' (MAX L, MIN L, Xavg L).
- Result:** Shows 'Xavg Nm' with a value of 2 and a status 'UL'.
- Outputs:** Includes 'Ready' (green indicator), 'SETUP' (black indicator), and 'Scan job No.'.
- Torque Nm:** A large empty box for displaying torque measurements.
- Summary:** Shows 'Xavg UCL Nm' (3.0) and 'Xavg LCL Nm' (0.5). At the bottom right, 'Step' is 0003 and 'Part No.' is 32.
- Function Keys:** F1, F5, and Diag buttons are visible at the bottom.

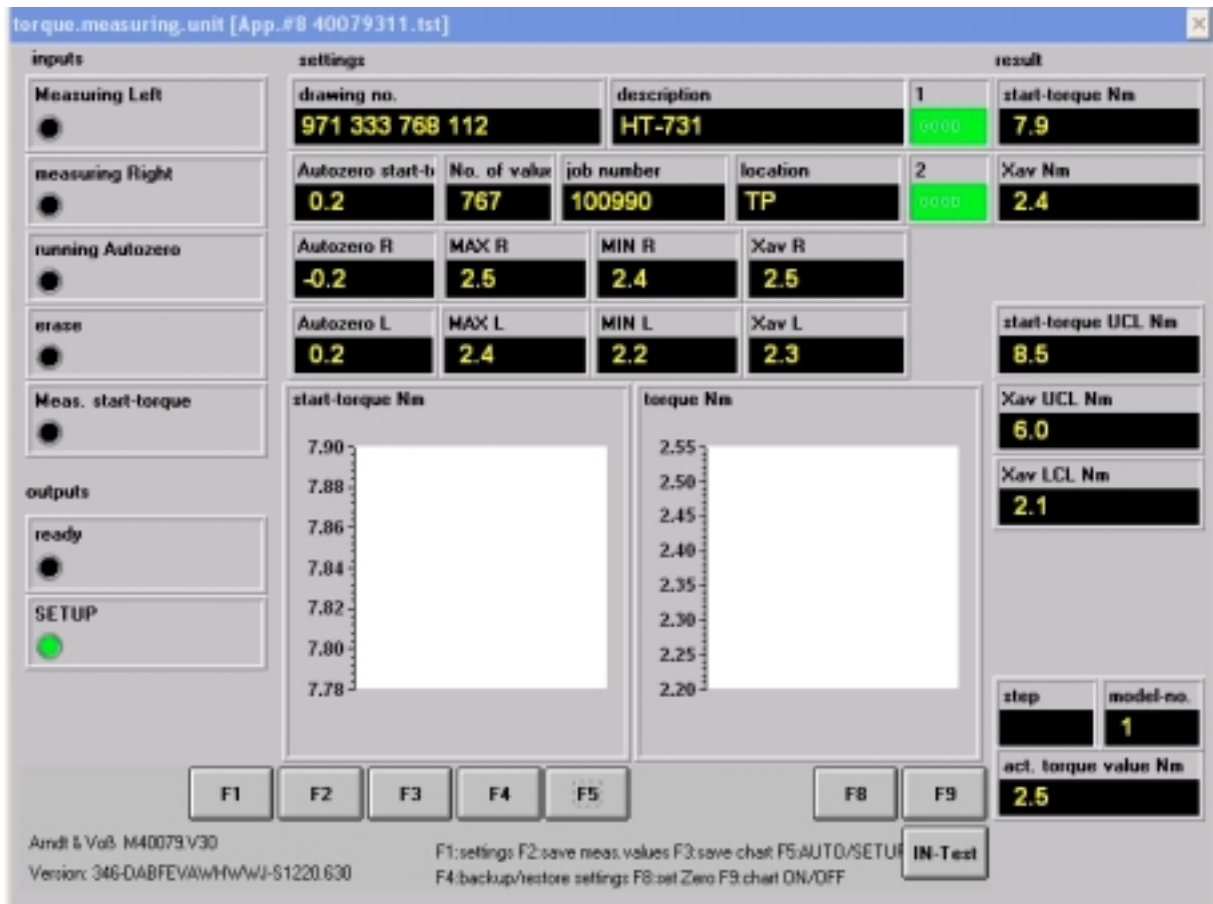
At the bottom of the screen, the following text is displayed:

Arndt & Voß M40079.V30
Version: 353-DABFEVBBWGFY-SV1227.630
F1: settings F2: save meas. values F3: save chart F5: AUTO/SETUP
F4: backup/restore settings F8: set Zero F9: chart ON/OFF

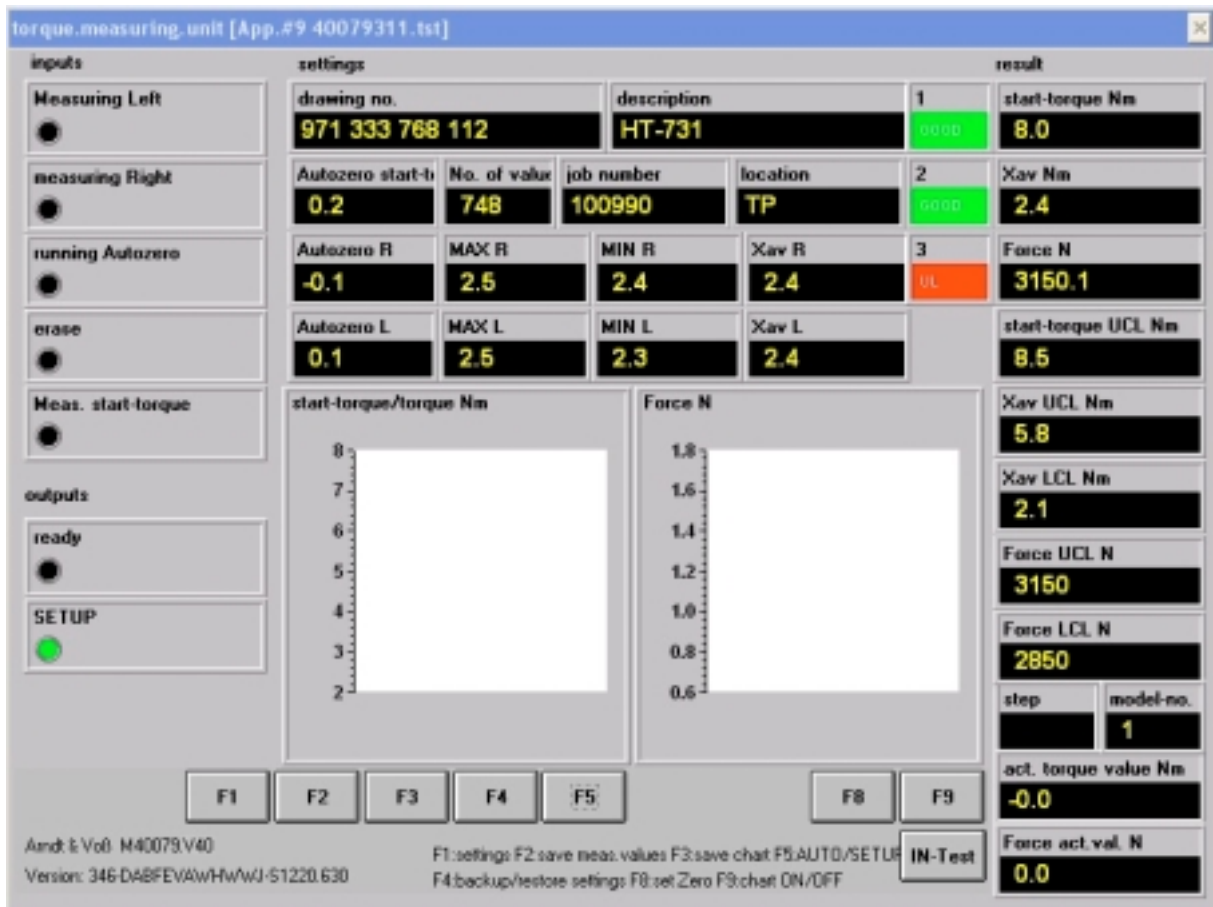
Switching to SETUP can only be done by entering the correct password. Switching back to AUTOMATIC is done without entering the password.



In SETUP mode, the current torque value is displayed and the function keys are activated.



M40079.V40: In addition, the force windows are displayed.



4.1 F1 Settings

Torque.Measuring.Unit.Settings

Part No. Workstation

Tolerance limits

Job number

Xavg UCL Nm Drawing no.

Xavg LCL Nm Description

ACCEPT ACCEPT

Autozero UL Nm ACCEPT

Autozero LL Nm

DnScreen Keyboard ON

Continue: Key "TAB" ACCEPT: Key "ENTER"

Result

Xavg Nm avg

Xavg UCL Nm
3.0

Xavg LCL Nm
0.5

Step	Part No.
1000	32

Act. torque value Nm
0.9

Arndt & Voß M40079.V30
Version: 345-DABFEVW9HFWJ-S2MZ1220.630

F1: settings F2: save meas. values F3: save chart F5: AUTO/SETUP
F4: backup/restore settings F8: set Zero F9: chart ON/OFF

M40079.V40: In addition, the force windows are displayed.

Selection only possible in the SETUP mode!

The values are entered into the input fields. By pressing the TAB key, the next field is selected. If the respective value field is darkly marked, it may be overwritten by entering the new value. By only pressing ENTER, the old value remains. After all fields have been updated, the set-up menu closes automatically.

Meaning of each field:

Model No.: Number of the part type whose specific values are selected. A maximum of 32 types may be stored.
In the automatic mode, the model number is preset by the machine control.

Tolerance limits:

Start-torque UCL: upper control limit for the start-torque (OPTION)
Xavg UCL: upper control limit for the average torque value
Xavg LCL: lower control limit for the average torque value
Force UCL: upper control limit for the average force value (M40079.V40 only)
Force LCL: lower control limit for the average force value (M40079.V40 only)

Autozero UL Nm: Upper limit for start-torque and torque. If the limit is exceeded, the Only with OPTION "Z" measurement is classified as NOT GOOD and the error message "Error AUTOZERO !" is displayed.

Autozero LL Nm: Lower limit for start-torque and torque. If the limit is undercut, the Only with OPTION "Z" measurement is classified as NOT GOOD and the error message "Error AUTOZERO !" is displayed.

Workstation: In the measuring unit, 10 characters are defined as designation for the workstation in a parameter file c:\daten\arbeitsplatz.dat. It is not possible for the user to change this file in the measuring program. If this file exists in the unit, it is not possible to change the settings (F1) for the workstation.

Job number: 12 digits are mandatory for this field. A plausibility check for numerical input is carried out.

Drawing number: The material or drawing number is formatted according to the formula xxx.xxx.xxx.xxx-xx. The 14 digits (in this example "x") are mandatory fields and the 3 dots as well as the dash are predefined. A plausibility check for numerical input is carried out.

Description: Entry of data which is allocated to the selected type number.

4.2 F2 Save measuring values to USB storage device

Selection only possible in SETUP mode!

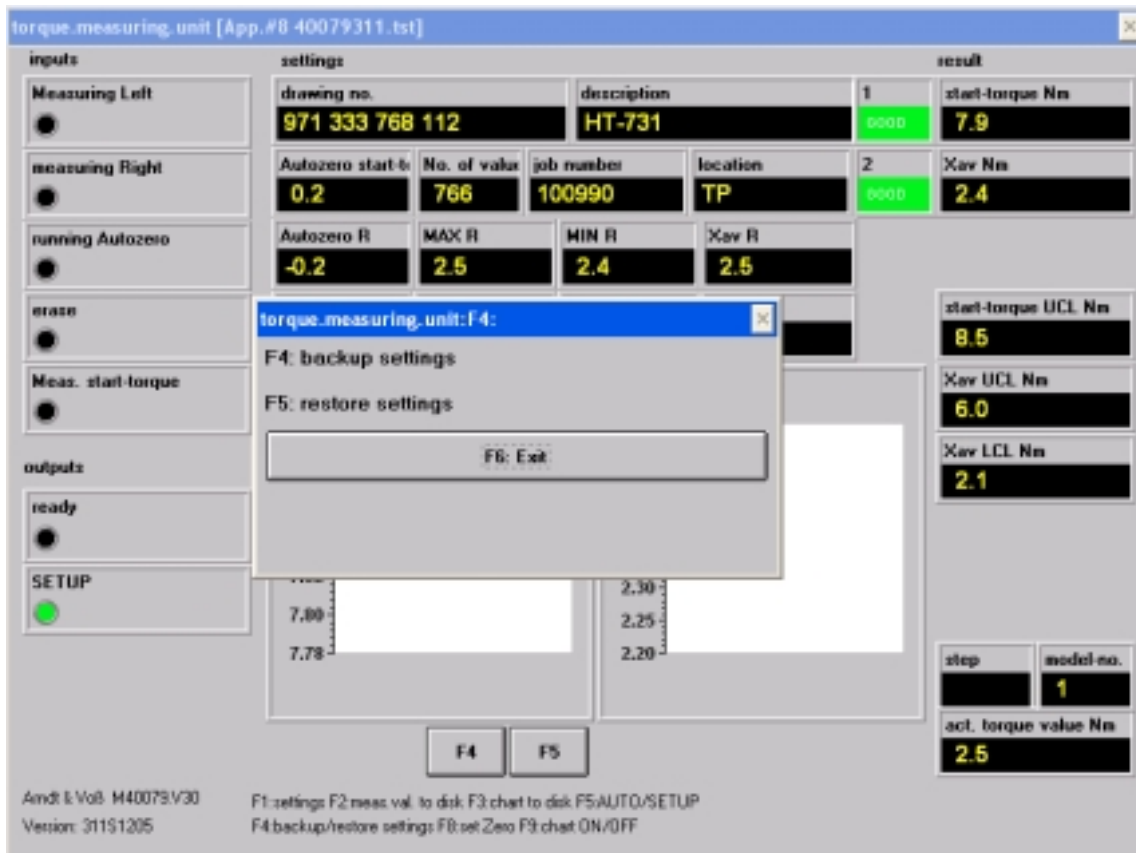
The measuring values are saved onto the external USB storage medium in PPQ5 format.

4.3 F3 Save chart to USB storage device

Selection only possible in SETUP mode!

In case of technical problems, the courses of the measuring values may be saved onto the external USB storage medium for analysis purposes.

4.4 F4 Backup/restore settings



Selection only possible in SETUP mode!

The current values are saved onto the external USB storage medium or recopied.

4.5 F8 Set zero

Selection only possible in SETUP mode!

The actual value of the torque is set to zero.

4.6 Gain adjustment

The calibration may only be carried out by specially trained staff. The setting may be done at the back of the unit at the hidden adjuster T1. The unit was calibrated in the factory.

Gain adjustment process with lever arm and standard weight:

Approximation formula: $\text{torque (Nm)} = \text{lever arm (cm)} * \text{weight (kg)} * 0,1$
e.g. lever arm 20cm, standard weight 5kg → torque 10Nm

- Unload torque gauge bar and set display to zero (cf. 4.6).
- Instal standard weight and read display.
- If the display does not correspond to the specified torque value, it needs to be corrected with the hidden adjuster T1 at the back of the unit until the specified value is displayed. Afterwards, repeat the testing, starting with a) and if necessary correct the calibration until the displayed value is right. It is recommended to carry out the gain adjustment process with different weights.

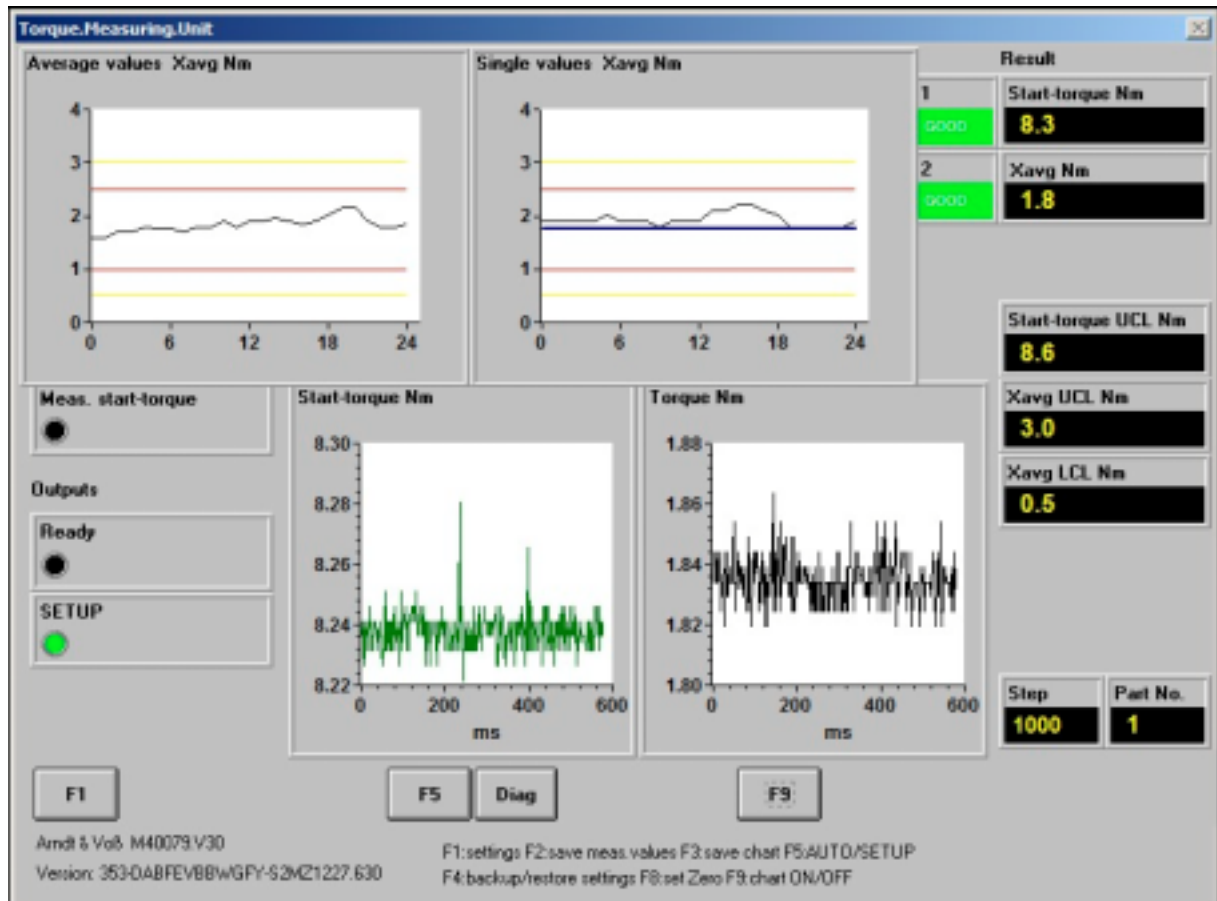
If a measuring amplifier A&V 5305 (T1-T4) is exchanged, the gain adjustment needs to be checked and corrected if necessary.

4.7 OPTION: F9 Chart ON/OFF (Statistics)

Selection only possible in SETUP mode!

Selection of the charts with torque average and single value course.

ADDITIONAL OPTION "Statistics start-torque": start-torque average and single value course (cf. next page).



The blue line in the single value chart corresponds to the average value of all stored single values.

The upper red horizontal line marks the upper limit UL.

The lower red horizontal line marks the lower limit LL.

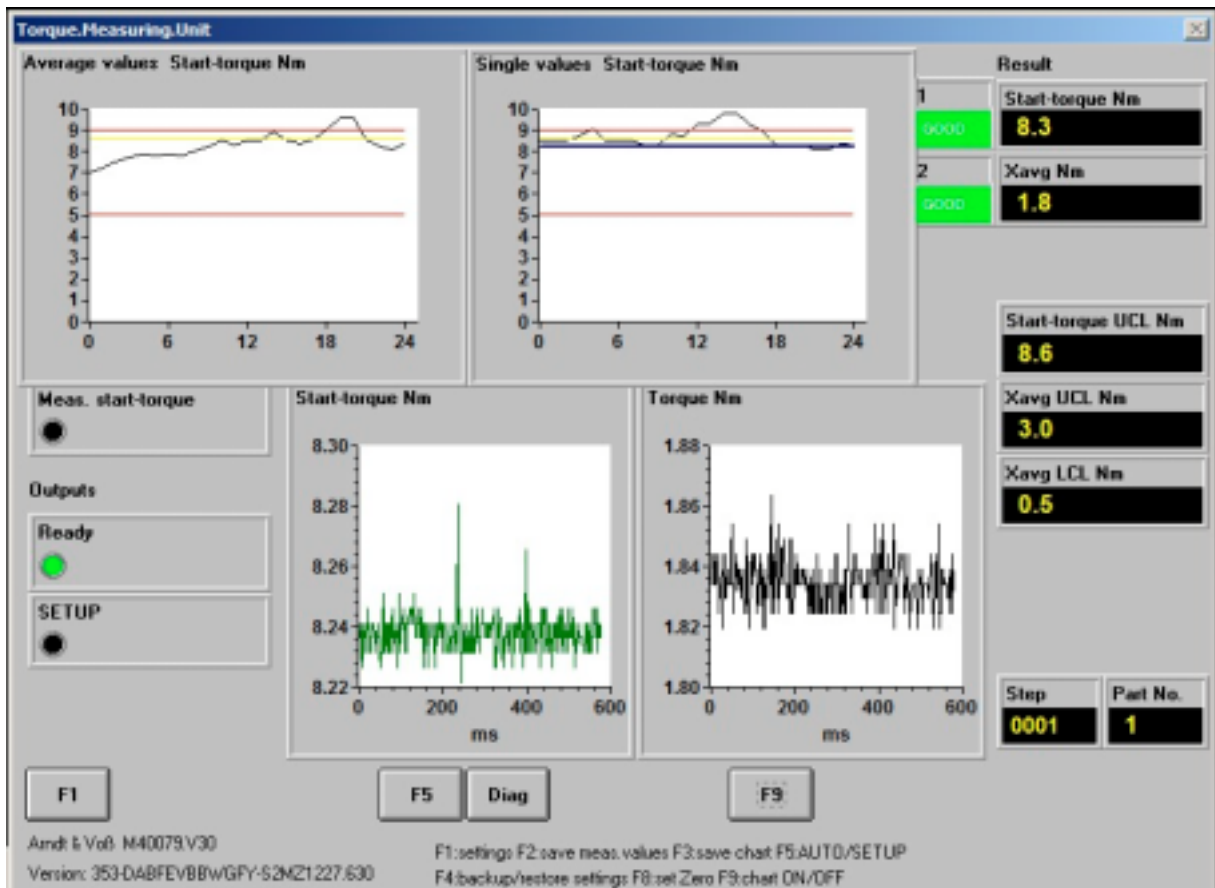
The upper yellow horizontal line marks the upper control limit UCL.

The lower yellow horizontal line marks the lower control limit LCL.

After switching to AUTOMATIC mode, the statistics charts showing the torque average and single value course remain opened.

ADDITIONAL OPTION "Statistics start-torque":

By pressing the button F9, the statistics charts for start-torque average and single value course are opened.



By pressing the button F9 again, the statistics charts are closed.

If the statistics mode is active, settings may be changed for this mode in the settings menu F1 in SETUP mode.

Statistics (ENTER) opens the input fields for the statistics settings:

Torque.Measuring.Unit

Torque.Measuring.Unit:Statistics: Settings

Torque Nm	Start-torque Nm
UL 2.5	UL 9
LL 1	LL 5
Batch-size Xavg 2	Batch-size Xavg 2
Number of X 100	Number of X 100
Number of Xavg 100	Number of Xavg 100
Y-axis MAX 4	Y-axis MAX 10
Y-axis MIN 0	Y-axis MIN -5
ACCEPT ACCEPT	ACCEPT

OnScreen Keyboard ON

Continue: Key "TAB" ACCEPT: Key "ENTER"

OnScreen Keyboard ON ACCEPT ACCEPT ACCEPT ACCEPT

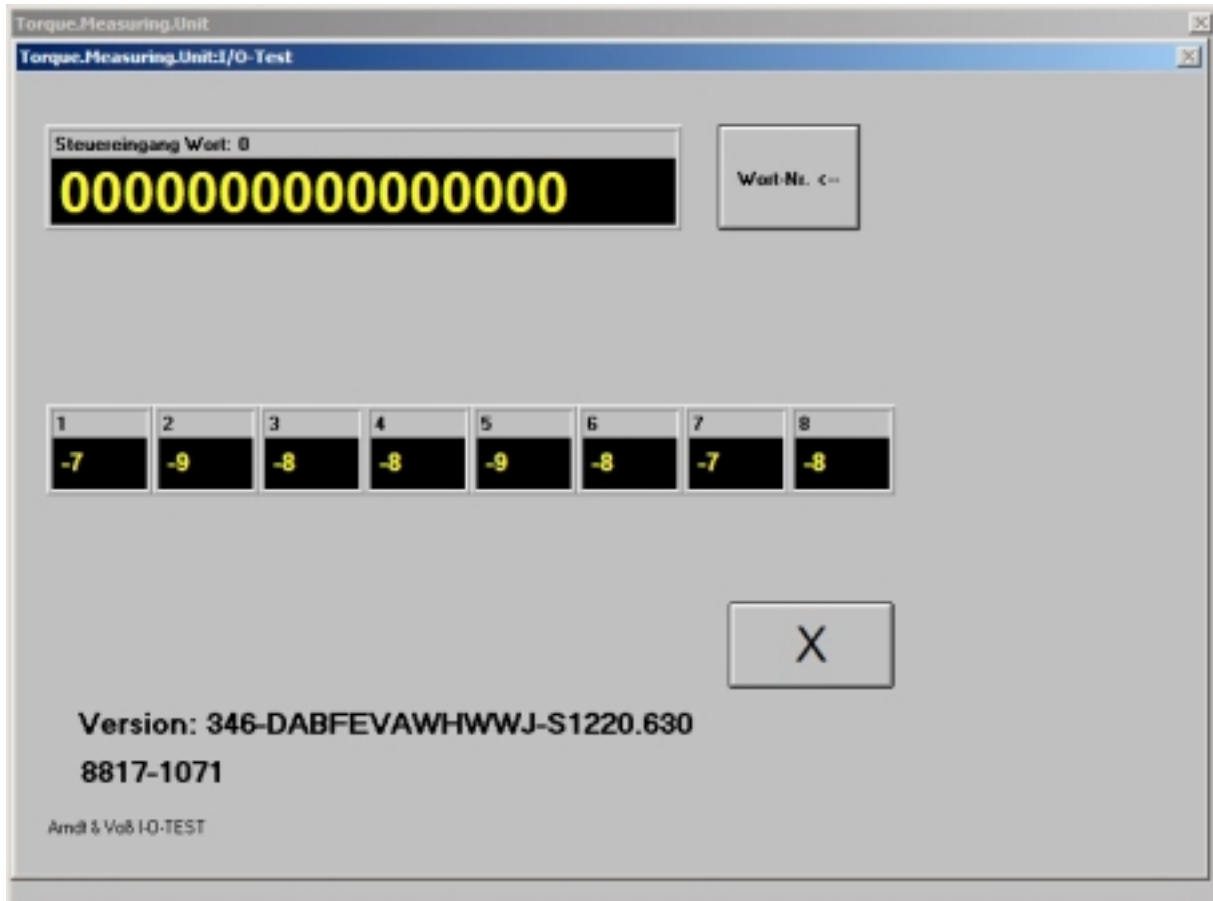
Continue: Key "TAB" ACCEPT: Key "ENTER"

Statistics (ENTER)

UL: Upper tolerance limit (upper yellow horizontal line)
LL: Lower tolerance limit (lower yellow horizontal line)
Batch-size Xavg: Number of single values X for calculating the arithmetic average value Xavg avg
Number of X: Maximum number of the last single values for the statistics chart
Number of Xavg: Maximum number of the last average values for the statistics chart
Y-axis MAX: Upper scale end for the statistics chart
Y-axis MIN: Lower scale end for the statistics chart
ACCEPT: Save parameters and return into the previous menu

4.8 IN-Test

The function key IN-Test opens an IN-test panel for diagnosis purposes. The max. 8 measuring inputs, 0...7 input bits as well as the currently used program release and the name of the measuring computer are displayed.

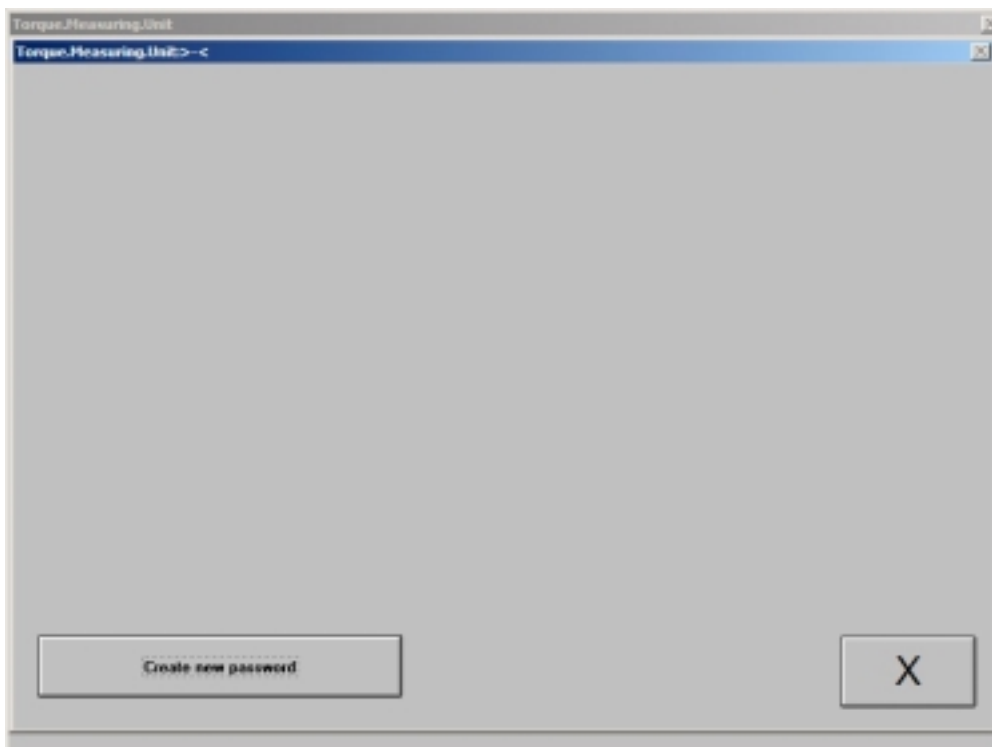


4.9 Configuration menu

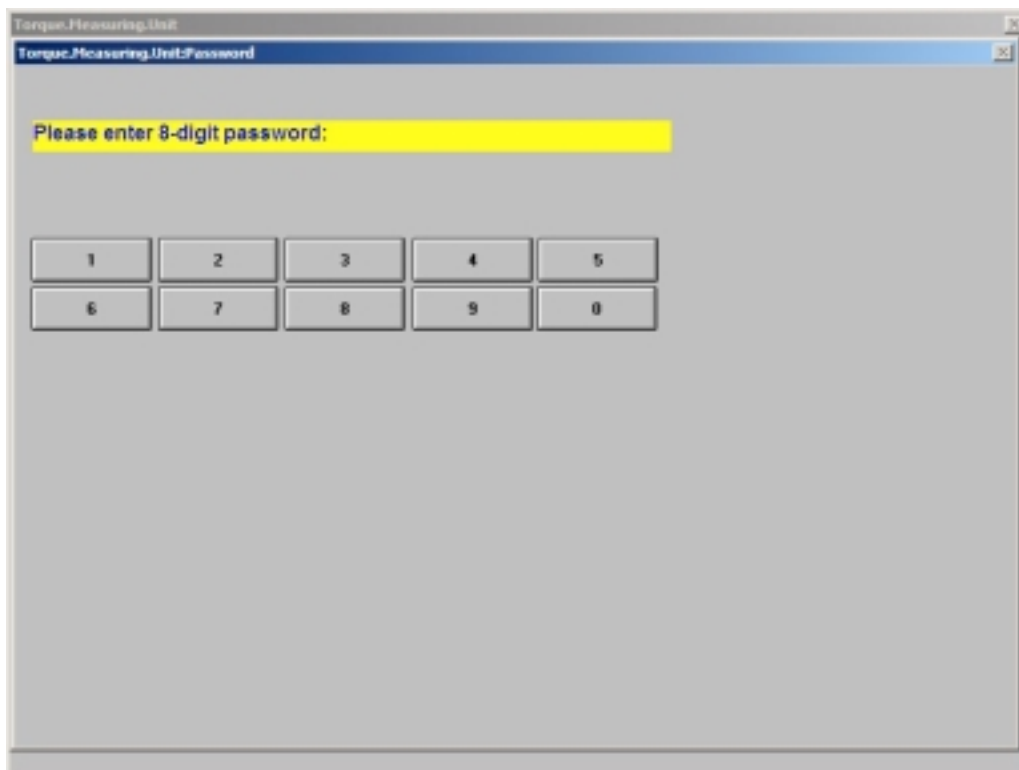
Pressing the button >-< opens the configuration menu. In this menu, the password for switching from AUTOMATIC to SETUP may be changed.



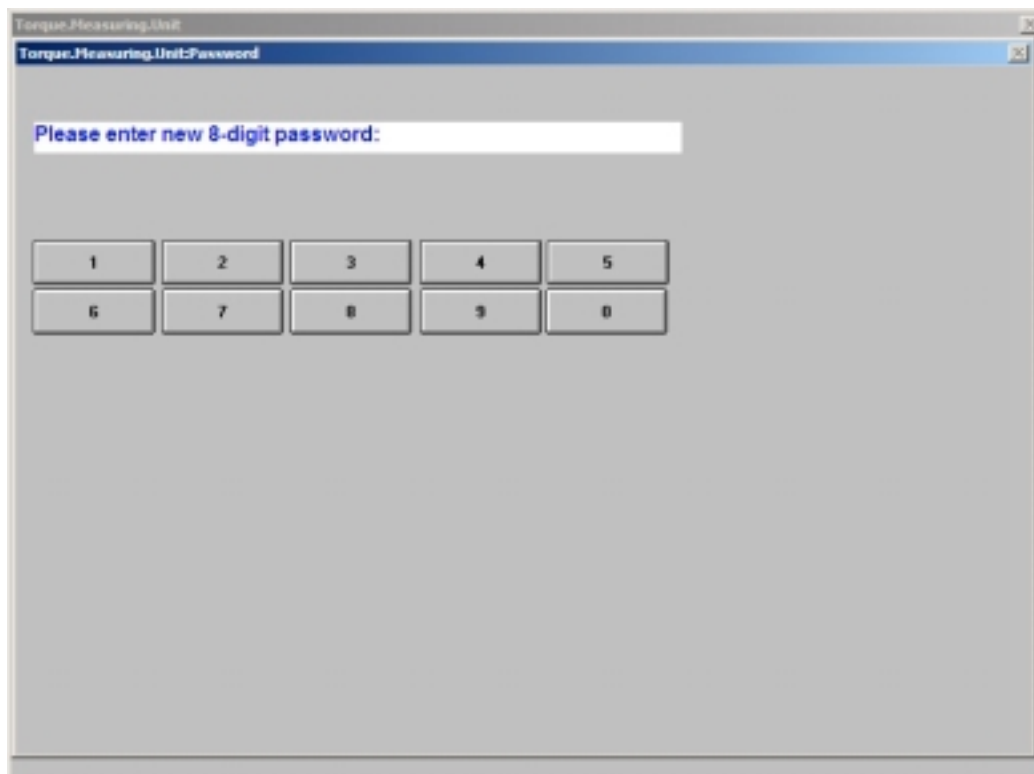
Press the button "Create new password".



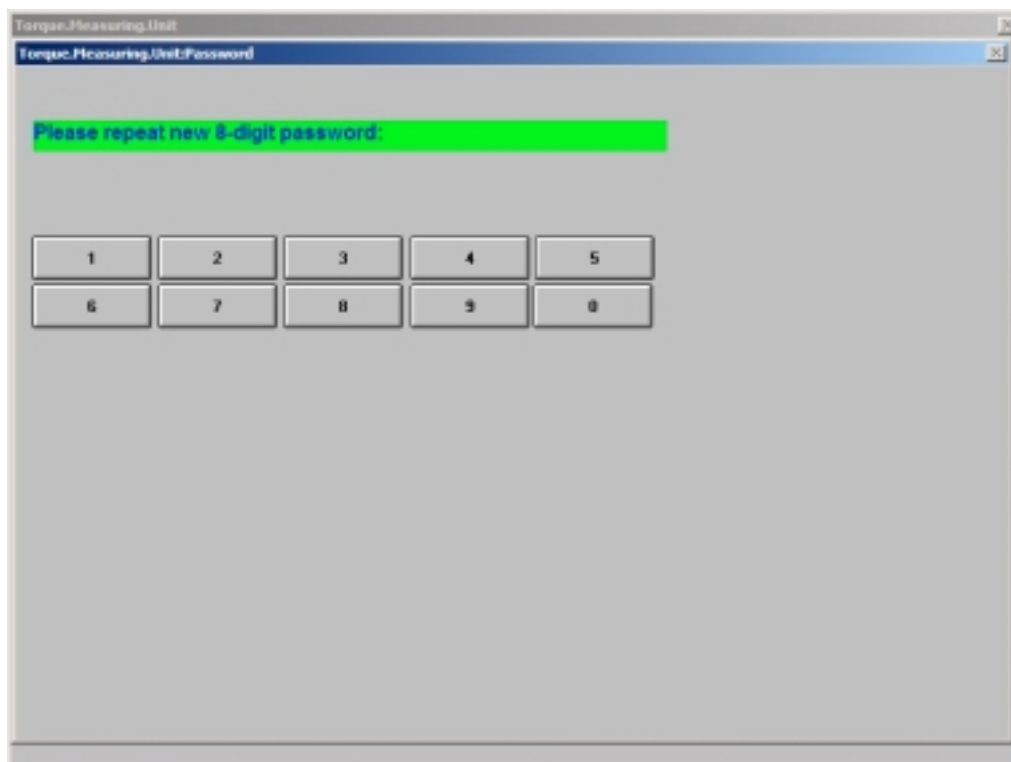
First of all, the old password needs to be entered (password prompt marked in yellow). It is necessary to enter the password by mouse or touchscreen.



Then, a new 8-digit password may be defined (password prompt marked in white).



The new password has to be repeated (password prompt marked in green).



The new password is saved and the unit switches into SETUP mode.

In case the password is lost, please contact our technical support.

4.10 OPTION: Diagnosis

Selection only possible in AUTOMATIC mode!

Activate the curve diagnosis function by pressing the on-screen key "Diag". After the next measurement, the diagnosis window opens. It displays the torque course for the entire measuring cycle with start-torque, measuring right and measuring left.

This diagnosis function serves as an adjustment aid for optimising the torque measurement. It is thus possible to evaluate the position of the measuring windows within the measuring cycle and to improve the adjustment of the machine control.

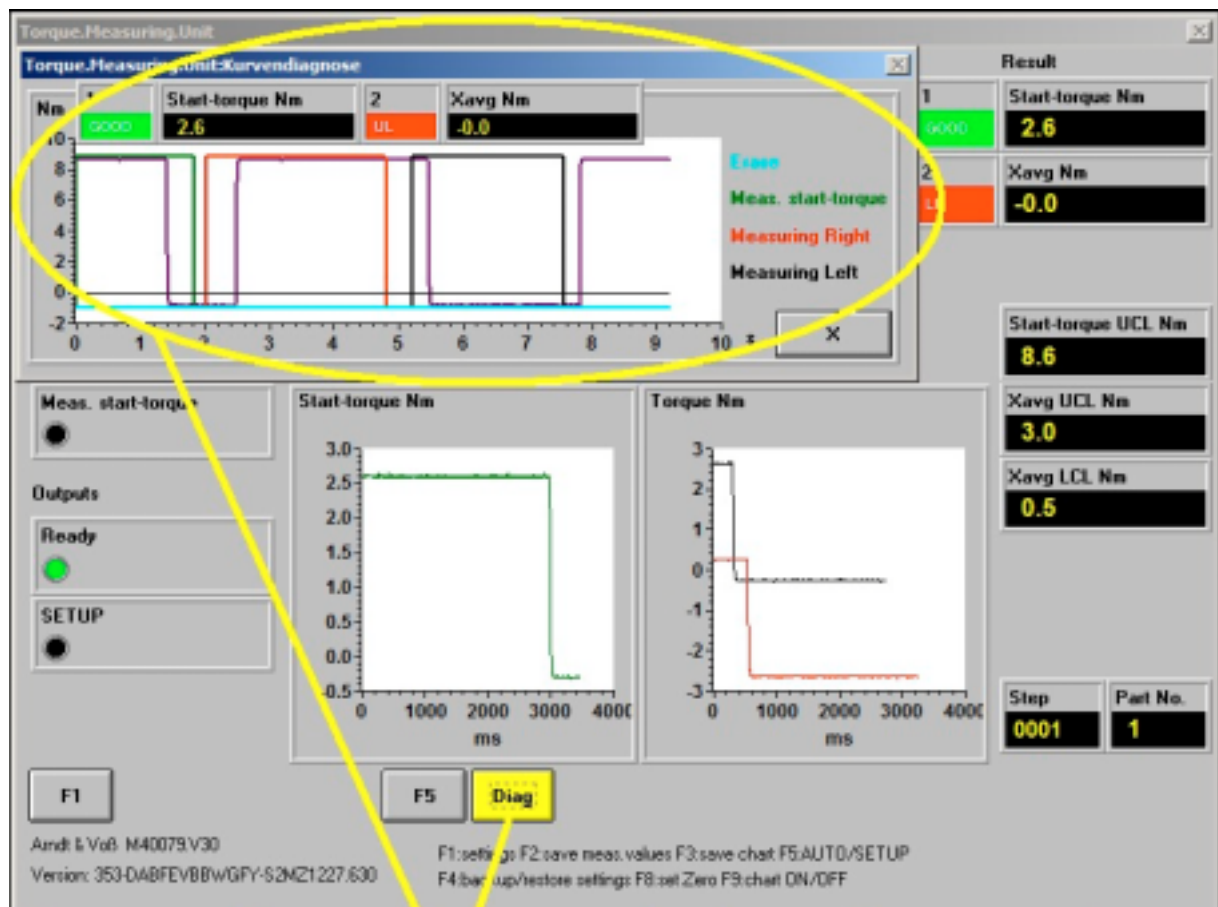


Diagram of the torque course for the entire measuring cycle with start-torque, measuring right, measuring left

4.11 OPTION: Importing settings via the PLC

Output of measuring values and settings to the PLC:

The results of the last measurement are output according to the description in section 6. on page 28 (NOT option "P").

Reading the settings and job data from the PLC (OPTION "P"):

The data transfer is carried out according to the description in section 6. on page 29 (option "P").

4.12 OPTION: Import of job number and drawing/material number via barcode scanner

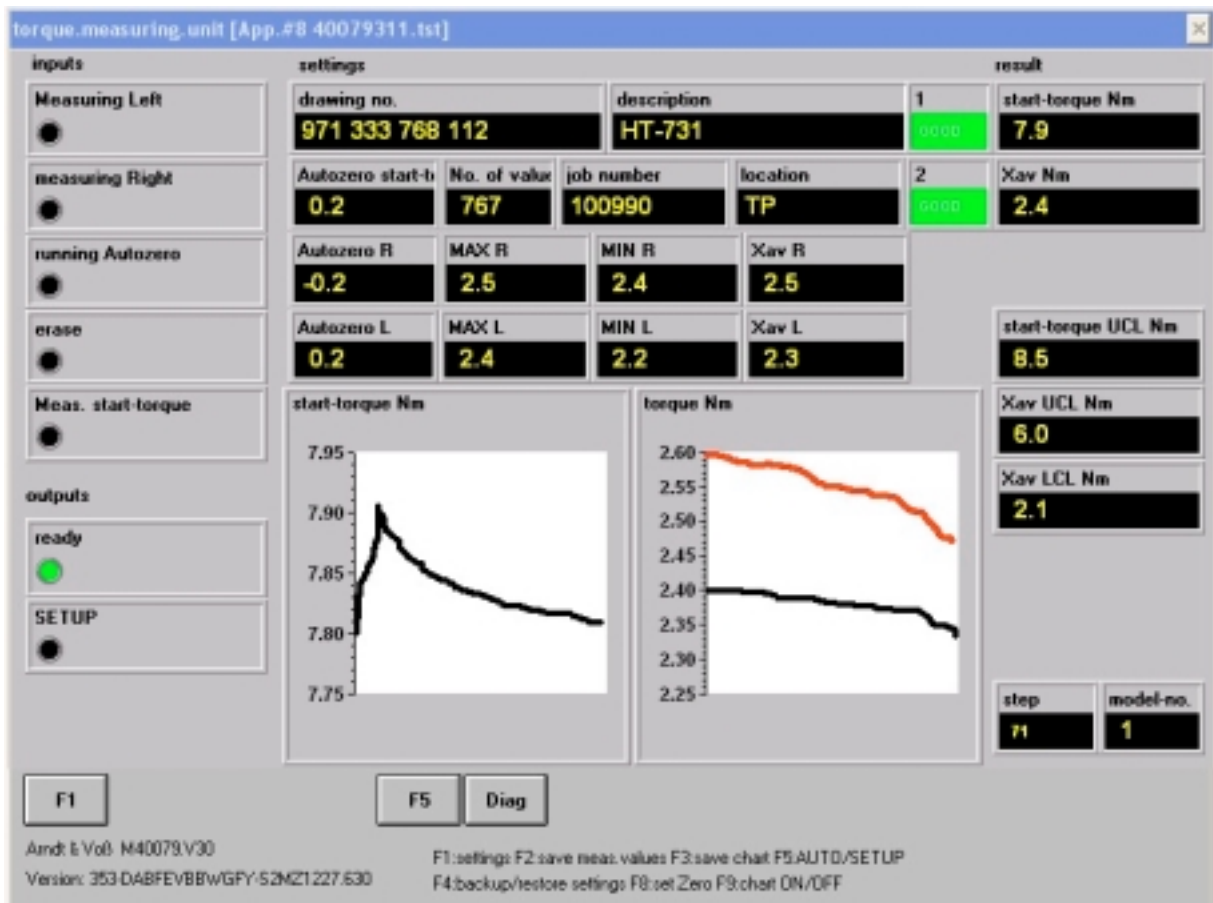
This program option makes it possible to import job numbers and drawing/material numbers from barcodes via barcode scanner. The barcode scanner is attached to the measuring unit via USB interface. The barcode information is read and imported by the measuring program.

Example of the drawing number structure: 027.060.030.203-02 or 027.060.030.203

Example of the job number structure: 42136391

The length of the job number with 8, 12 or 16 digits may be parametrized. A plausibility check of the scanned data for numerical input and number of digits is carried out. Scanning of barcodes is possible in SETUP as well as in AUTOMATIC mode.

5. Automatic



Depending on the options selected via the PLC, the data for start-torque and/or torque R (clockwise rotation) are possibly not displayed.

In Automatic mode it is possible to enter a job number in the settings menu under F1.

The measuring computer is ready for measuring and awaits the start signal from the PLC. The measuring values and classifications of all characteristics as well as the course of the measuring values of the last measuring cycle are displayed.

In measuring program option "M" the internal evaluation of the measuring values may be parameterised.

Average determination

Xavg = (MAX+MIN)/2

Xavg avg = arithmetic average value

Xmedian = median value

Measuring value display

Xavg Nm

Xavg Nm avg

Xavg Nm Median

Display of status

The field "step" displays a status diagnosis (from program release -324 upwards).

The status is displayed as 4-digit hexadecimal number (combinations are possible):

0x0001	READY
0x0002	START-TORQUE_READY
0x0004	MEASURING_LEFT_READY
0x0008	MEASURING_RIGHT_READY
0x0010	START-TORQUE_WAS_ACTIVE
0x0020	MEASURING_LEFT_WAS_ACTIVE
0x0040	MEASURING_RIGHT_WAS_ACTIVE
0x0080	CYCLE_ABORT
0x0100	ERASE_ACTIVE
0x0200	READY (measuring values ready for transfer)
0x0400	SEND (transfer of measuring values in progress)
0x0800	ERASE_WAS_ACTIVE
0x1000	SETUP_ACTIVE
0x2000	COMPLETE MEASUREMENT_ACTIVE

6. Connection schematics

Anschluß Drehmomentsensor

BU Serie 680 Meßrechner
T1

Drehmomentsmeßwelle
HBM T4/T5

ODER

Drehmomentsignal
+/-10V
HBM T20/WN

Anschluß Kraftsensor (Nur M40079.V40)

BU Serie 680 Meßrechner
T3 (oder T4 konfigurierbar)

Kraftsignal
+/-10V

ODER

Kraftmeßdose

Anschluß Winkelsensor

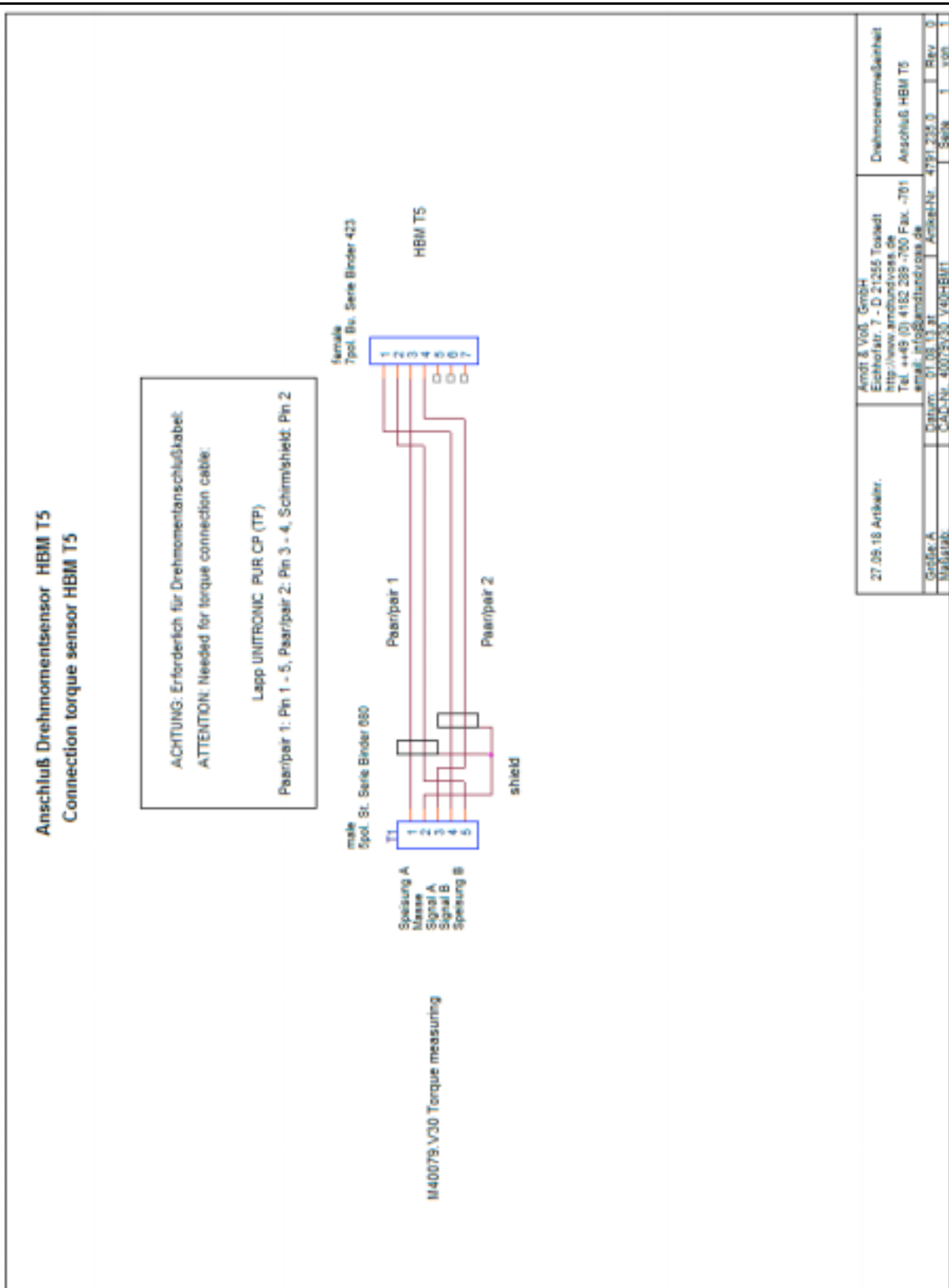
BU Serie 680 Meßrechner
X314-1

Winkelsignal
HBM T20/WN

ACHTUNG: Erforderlich für Verlängerungskabel
Lapp UNITRONIC PUR CP (TP)
Paar 1: Pin 1 - 5, Paar 2: Pin 3 - 4, Schirm: Pin 2

Zeitdiagramm

08.02.11 Eingang Winkel 01.08.11 Drehm. T3 23.06.15 Seitennr.	Arndt & Voß GmbH Eichhofstr. 7 - D 21255 Tostedt http://www.arndtundvoss.de Tel. ++49 (0) 4182 289 -760 Fax. -781 email. info@arndtundvoss.de	Drehmomentsmeßeinheit Sensorschnittstellen
Größe: A	Datum: 20.04.09 at	Artikel-Nr. M40079.V30/V40
Maßstab:	CAD-Nr. 40079V30_V40b1	Rev. 0
	Seite 1	von 4



Eingänge von der SPS / Inputs from PLC		Ausgänge zur SPS / Outputs to PLC	
Bit	Wort 0 / Word 0	Bit	Wort 1 / Word 1
0	Messen Links / Run Measuring LEFT	0	Meßeinheit BEREIT / Unit READY
1	AUTOZERO	1	Messen Links aktiv / Measuring LEFT is running
2	Messen Rechts / Run Measuring RIGHT	2	Messen Rechts aktiv / Measuring RIGHT is running
3	Typnr. / model-no. Bit 0	3	Klassierung OT / torque: Result > Upper Limit
4	Typnr. / model-no. Bit 1	4	Klassierung GUT / Result GOOD
5	Typnr. / model-no. Bit 2	5	Klassierung UT / torque: Result < Lower Limit
6	Typnr. / model-no. Bit 3	6	Losbrechm. OT / start-torque: Result > Upper Limit
7	Typnr. / model-no. Bit 4	7	Kraft OT / Force > Upper limit (M40079.V40)
8	Drehmoment: Nur Linksmessung / torque: Only LEFT mode	8	Kraft UT / Force < Lower limit (M40079.V40)
9	Meßbereich / range 9,99 (< V300)	9	Meßzyklus LB aktiv / Measuring start-torque is running
10	Freigabe FS, SETUP ohne Passwort (> V309)	10	Statistik NIO
11	Dezimalpunkt / decimal XX, X (< V300)	11	Drehmoment / torque error L/R
12	Meßbereich / range 1,99 (< V300)	12	R/L-Fehler
13	Funktion Losbrechmoment: EIN / start-torque mode: ACTIVE	13	
14	Vorzeichen Losbrechmoment umkehren / invert sign of start-torque	14	Typwechsel läuft / changing of model-no. is running
15	Messen Losbrechmoment / Run Measuring start-torque	15	EINRICHTEN / SETUP
			Meßzyklus / measuring
			AUTOZERO
			Zeitdiagramm / timing
			Zeit / time

IN 15: Löschen / Prepare new measuring	IN 12: EIN / ON!	IN 14: Messen Losbrechmoment / Run Measuring start-torque	IN 1: AUTOZERO
IN 0: Messen Links / Run Measuring LEFT	IN 8: AUS / OFF!	IN 2: Messen Rechts / Run Measuring RIGHT	OUT 0: Meßeinheit BEREIT / Unit READY
OUT 0: Meßeinheit BEREIT / Unit READY	IN 12: EIN / ON!	OUT 9: Meßzyklus LB aktiv / Measuring start-torque is running	OUT 1: Messen Links aktiv / Measuring LEFT is running
OUT 1: Messen Links aktiv / Measuring LEFT is running	IN 8: AUS / OFF!	OUT 2: Messen Rechts aktiv / Measuring RIGHT is running	OUT 3-8: Klassierung / Results
OUT 2: Messen Rechts aktiv / Measuring RIGHT is running	9: Meßbereich 9,99 (bis V299)		
	10: Dezimalpunkt XX,X (bis V299)		
	11: Meßbereich 1,99 (bis V299)		

01.08.11 Bits-11 IN-Wort0	Arndt & Voß GmbH	Drehmomentmess Einheit / torque measuring unit
	Eichhofstr. 7 - D 21255 Tostedt	Signale / controls
	http://www.arndtundvoss.de	Meßwertfassung / Run measuring
	Tel. ++49 (0) 4182 289 -760 Fax. -761	Artikel-Nr. M40079.V30/V40
	email: info@arndtundvoss.de	Rev. 0
	Datum: 20.04.09 at	Seite 2 von 4
	CAD-Nr. 40079V30_V40b2	

Von der SPS übergebene Daten (ASCII-String)		Eingänge von der SPS			Ausgänge zur SPS		
Codenr. Bedeutung	Stellenzahl (max. Positionsnr.:31)	Bit-Nr.	Wort 0	Wort 1	Bit-Nr.	Wort 0	Wort 1
0		0	Messen Links	0	0	Meßeinheit BEREIT	0
1	Zeichnungsnr.	32	AUTOZERO Zyklus	1	Positionnummer 5 Bit 1 (Meißtellennr.)	1	Meßzyklus Links aktiv
2	Bezeichnung	32	Messen Rechts	2	Binär	2	Meßzyklus Rechts aktiv
3	Auftragsnr.	32	Typnr. Bit 0	3	Typnr. Bit 0	3	Klassierung OT
4	Arbeitsplatz	32	Typnr. Bit 1	4	Typnr. Bit 1	4	Klassierung GUT
5	Datum	8 (Format:20070424) (JJJJMMTT)	Typnr. Bit 2	5	Typnr. Bit 2	5	Klassierung UT
			Typnr. Bit 3	6	Typnr. Bit 3	6	Losbrechmoment OT
			Typnr. Bit 4	7	Typnr. Bit 4	7	Kraft OT (M40079.V40)
							Meßwert 14 Bit Binär
An die SPS übergebene Daten (Binärzahl)							
Meißtellennr.	Bedeutung						
1	Losbrechmoment MAX	8	Drehmoment: Nur Linksmessung	8	Kraft UT (M40079.V40)	8	
2	Drehmoment Xquer	9	Meßbereich 9,99 (bis V299)	9	Meßzyklus LB aktiv	9	
3	Kraft F (Nur M40079.V40)	10	Freigabe F5:SETUP ohne Passwort (ab V310)	10	Statistik NIO	10	
4	Korrekturwert f. Drehmoment Xquer: 0...+100	11	Meßbereich 1,99 (bis V299)	11	Drehmoment	11	
5	Losbrechmoment OT	12	Losbrechmoment messen: EIN	12	R/L-Fehler	12	
6	Drehmoment Xquer OT	13	Losbrechmoment invertieren	13	ASCII-Zeichen 7 Bit	13	
7	Drehmoment Xquer UT	14	Messen Losbrechmoment	14	Typwechsel läuft	14	Vorzeichen: 0=+
8	Kraft F OT (Nur M40079.V40)	15	Löschen	15	ENRICHTEN	15	Meßwert BEREIT (Einlesen FERTIG)
9	Kraft F UT (Nur M40079.V40)						
Datenübertragung von der SPS (in Betriebsart EINRICHTEN)							
Zeichennummer	n	n+1	n+2	n+3			
Typnr. 5 Bit					Meißtellennr. 5 Bit		
Codenr. 3 Bit					Meßwert/Vorzeichen 12 Bit		
Zeichenposition 5 Bit					Meßwert BEREIT		
ASCII-Zeichen 8 Bit					Meßwert ANFORDERN (Codenummer)		
Einlesewert von SPS Bereit							
Einlesen FERTIG							
Speichern in Datei erfolgt bei: 1.) Wechsel der Typnr. 2.) Umschalten von EINRICHTEN auf AUTOMATIK							
		***** Umschaltung auf Betriebsart EINRICHTEN: Codenummer <=> 0! (Nur wenn Webserver)				Meßwertübertragung zur SPS (in Betriebsart AUTOMATIK)	
		23.09.15 Seitennr. 29.01.15 Ausgabe Drehmoment R/L-Fehler				Arndt & Voß GmbH Eichhofstr. 7 - D 21255 Tostedt http://www.arndtundvoss.de Tel. ++49 (0) 4182 289 -760 Fax. -761 email: info@arndtundvoss.de (NICHT Option "P") Datum: 20.04.09 at Artikel-Nr. M40079.V30/V40 Rev. 0 CAD-Nr. 40079V30_V40b3 Seite 3 von 4	

Ein- / Ausgänge		Eingänge von der SPS		Ausgänge zur SPS					
Auftragsdaten (ASCII-String)	Byte Nr.	Stellenzahl (Bytes)	Bit-Nr.	Wort 0	Wort 1	Bit-Nr.	Wort 0	Bit-Nr.	Wort 1
Bedeutung			0	Messen Links	Typnr. Bit 0	0	Meßeinheit BEREIT		Typnr. Bit 0
			1	AUTOZERO Zyklus	Typnr. Bit 1	1	Meßzyklus Links aktiv		Typnr. Bit 1
Zeichnungsnr.	4 - 23	20	2	Messen Rechts	Typnr. Bit 2	2	Meßzyklus Rechts aktiv		Typnr. Bit 2
Blezeichnung	24 - 43	20	3	Gruppe 1 3	Typnr. Bit 3	3	Klassierung OT		Typnr. Bit 3
Auftragsnr.	44 - 63	20	4	Gruppe 1 4	Typnr. Bit 4	4	Klassierung GUT		Typnr. Bit 4
Arbeitsplatz	64 - 83	20	5	Gruppe 1 5	Typnr. Bit 5	5	Klassierung UT		Typnr. Bit 5
Einstellwerte (Binärzahl 16Bit Integer)			6			6	Losbrechmoment OT		
Losbrechmoment OT (0,1 Nm)	84 - 85	2	7			7	Kraft OT (M40079.V40)		
Drehmoment Xquer OT (0,1 Nm)	86 - 87	2	8	Drehmoment: Nur Linksmessung		8	Kraft UT (M40079.V40)		
Drehmoment Xquer UT (0,1 Nm)	88 - 89	2	9	Gruppe 1 9 F5.SETUP ohne Passwort		9	Meßzyklus LB aktiv		
Kraft F OT (N) (Nur M40079.V40)	90 - 91	2	10	Gruppe 1 10		10	Frage Typwechsel (Option "P")		
Kraft F UT (N) (Nur M40079.V40)	92 - 93	2	11	Gruppe 1 11		11	Drehmoment		
Reserve	94 - 111	18	12	Gruppe 2 12 Losbrechmoment messen: EN		12	RUL-Fehler		
			13	Gruppe 2 13		13			
Meßwerte (Binärzahl 16Bit Integer)			14	Messen Losbrechmoment	SPS Gruppe 2 BEREIT	14	Typwechsel läuft		14 Meßwerte BEREIT
Bedeutung	Byte Nr.	Stellenzahl (Bytes)	15	Löschen	SPS Gruppe 1 BEREIT	15	EMRICHTEN		15 Übernahme FERTIG
Losbrechmoment MAX (0,1 Nm)	112-113	2			parallel möglich				
Drehmoment Xquer (0,1 Nm)	114-115	2							
Kraft F (N) (Nur M40079.V40)	116-117	2							
Konstantwert f. Drehmoment Xquer: 0...+100 (Option "K")	118-119	2							
Istwert Drehmoment (0,1 Nm)	120-121	2							
Istwert Kraft F (N) (Nur M40079.V40)	122-123	2							
Reserve	124-127	4							

Messen Losbr./RechtsLinks

28.02.17 Warnung OT+UT

Die Einstellwerte jeder Gruppe müssen immer komplett übertragen werden.
Die Einstellwerte/Auftragsdaten werden NICHT übernommen, wenn Drehmoment Xquer OT = UT ist.
 Die Einstellwerte werden vom Meßrechner zur Kontrolle an die SPS zurückgegeben.
 Einstellwerte von der SPS überschreiben die am Meßrechner im Eingabemenü programmierten Werte.
 Meßwerte von der SPS werden vom Meßrechner ignoriert.

28.02.17 Warnung OT+UT
 28.02.15 Software
 28.01.15 Ausgabe Drehmoment RUL-Fehler
 27.11.14 Ausgabe über die Fräskette, Fräskette, Einbaugeschwindigkeit setzen
 Ergänzungen 15.08.12
 Ergänzungen 21.08.12
 Ergänzungen 31.08.12
 Belegung Typnr. 25.10.12
 Typnr. Bit 09.10.13
 SPS-Adressen
 CAD-Nr. 40079V30_v40-4

Drehmomentmessgerh.
 Signalverlauf Option "P"
 Datenübertragung
 der Einstellwerte
 28.02.17
 CAD-Nr. 40079V30_v40-4
 Seite 4 von 4

7. Settings of function modules

The following pages give an overview of the function modules which are contained in the torque measuring units M40079.V30 and M40079.V40 as well as of their specific settings.

7.1 USB Interface module 5326.620/630

The torque measuring unit contains a USB interface module 5326, either of version 620 or 630.

Version 5326.620



Version 5326.630



Connection cable PC - measuring device: Pin1 of the cable on Pin1 of the USB interface

USB socket X412: Internal USB, test socket (DO NOT USE)

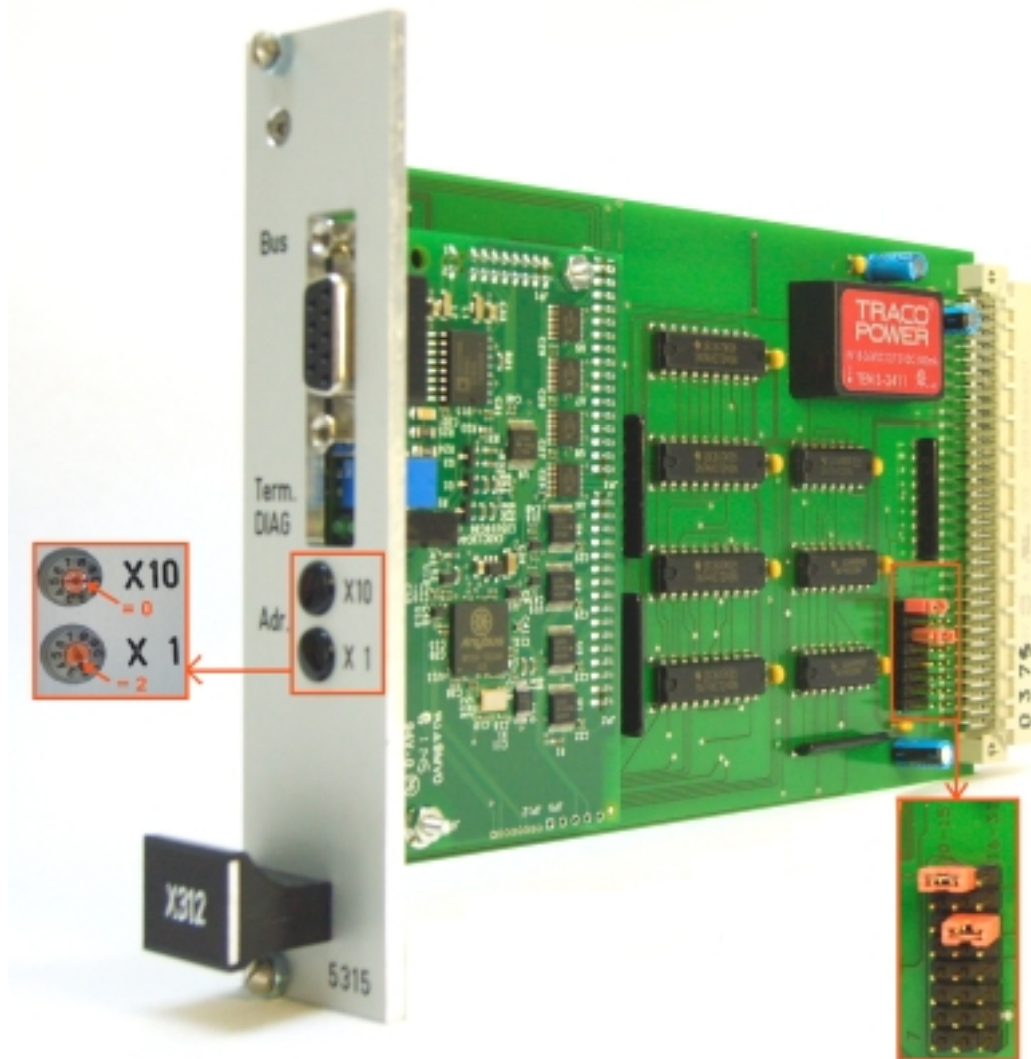
7.2 I/O profibus module

The torque measuring unit contains one of the following four I/O modules.

7.2.1 32-channel profibus module 5315

Connection X312

9-pole plug MIN D: control interface PLC profibus 4-Byte



Example of profibus address:
"02": X10 = 0, X1 = 2

Address jumper: 0 and 2

The profibus address is defined by
the machine control !

For setting profibus address, please remove black cover caps.

For further information regarding this profibus module please refer to the manual under www.arndtundvoss.de/5315.610E.pdf .

7.2.2 128-channel profibus module 5327.610

Connection X312

9-pole plug MIN D: control interface PLC profibus 128-Byte



Example of profibus address:
"02": X10 = 0, X1 = 2

Address jumper: 0

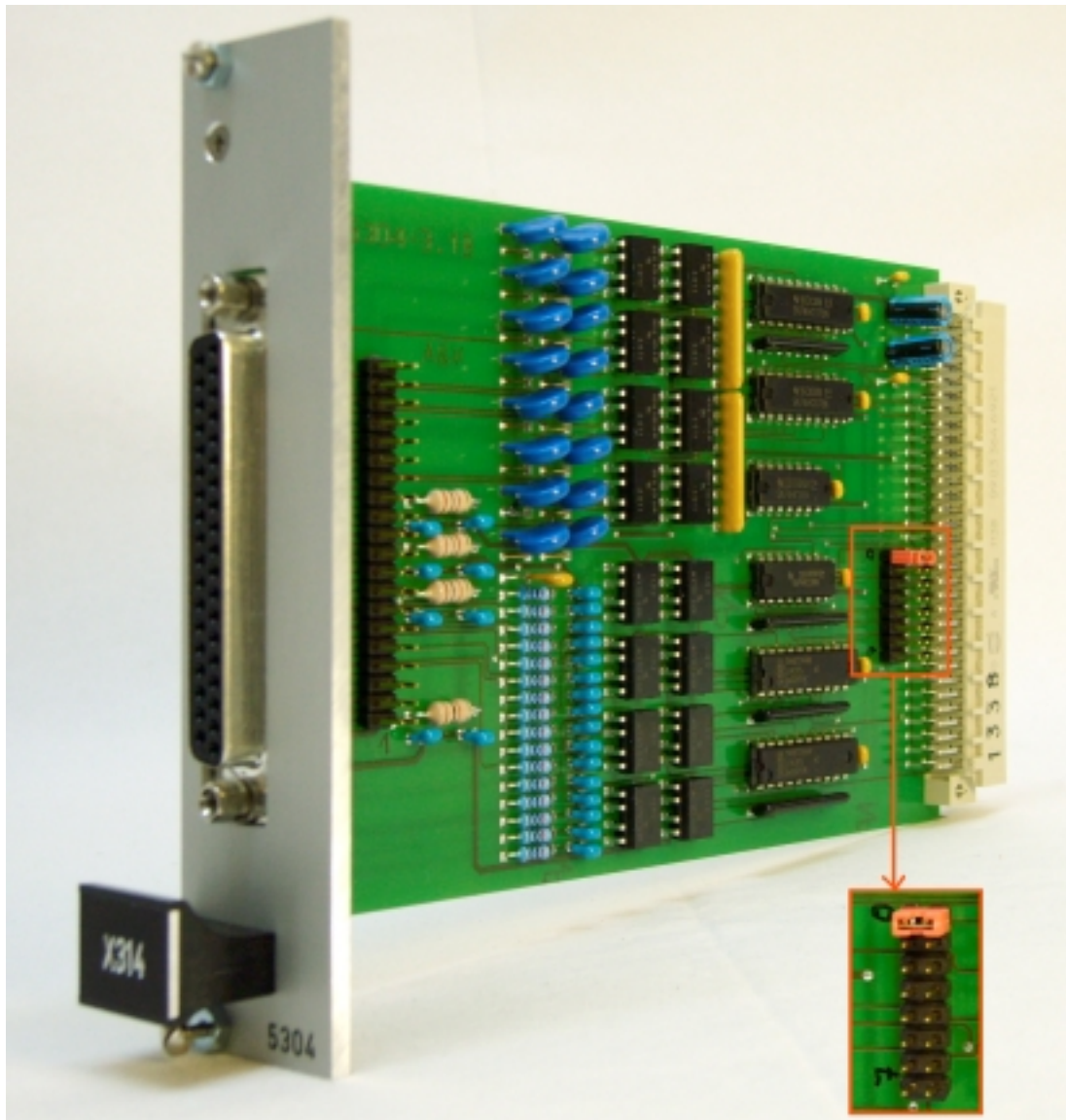
The profibus address is defined by
the machine control !

For setting profibus address, please remove black cover caps.

For further information regarding this profibus module please refer to the manual under
www.arndtundvoss.de/5327.610E.pdf .

7.2.3 16-channel input/output module 5304.610

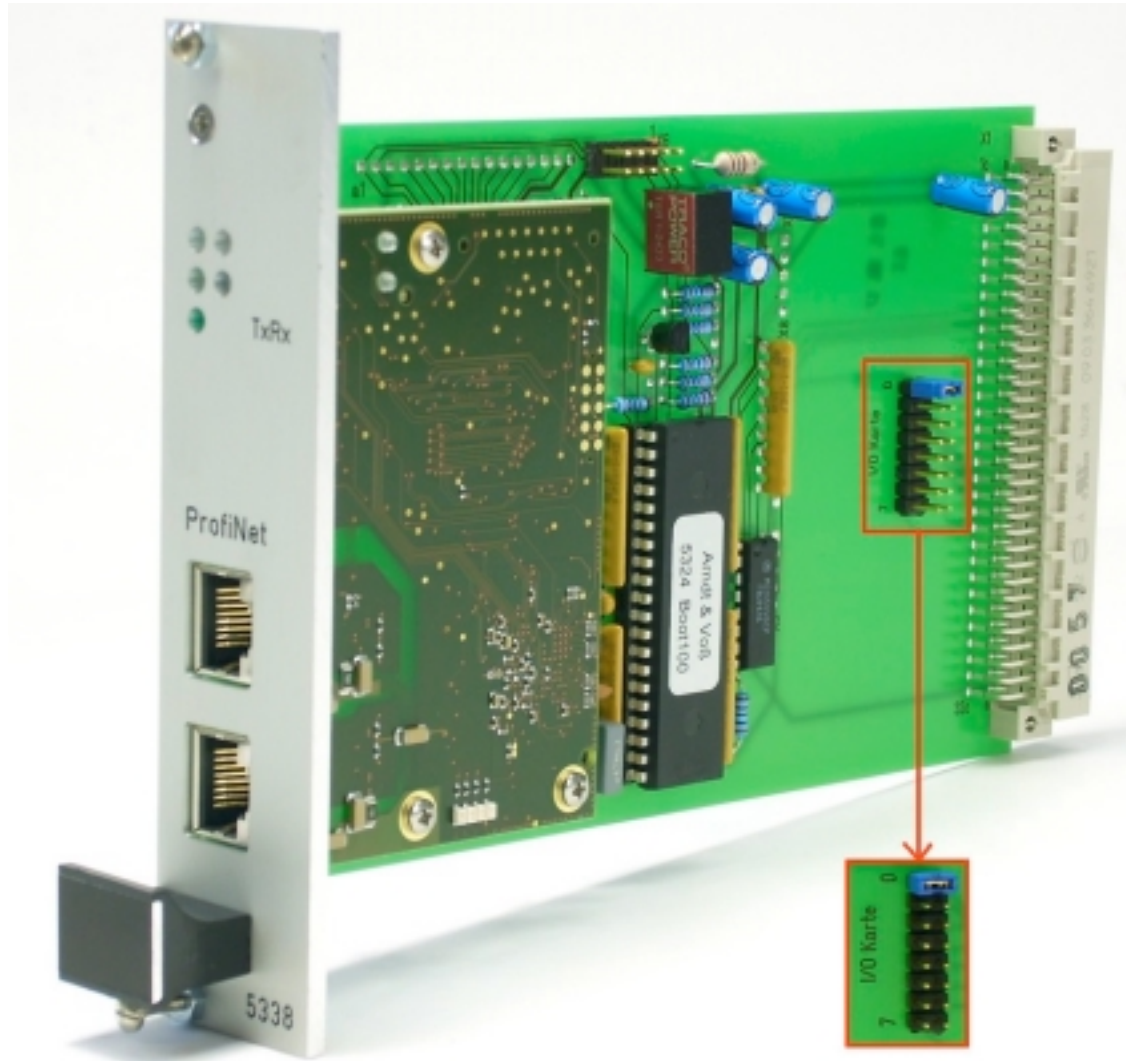
Connection X314
37-pole plug MIN D: parallel interface to PLC



Address jumper: 0

7.2.4 Profinet module 5338.610

Connection X312
2x RJ45 socket: control interface PLC profinet



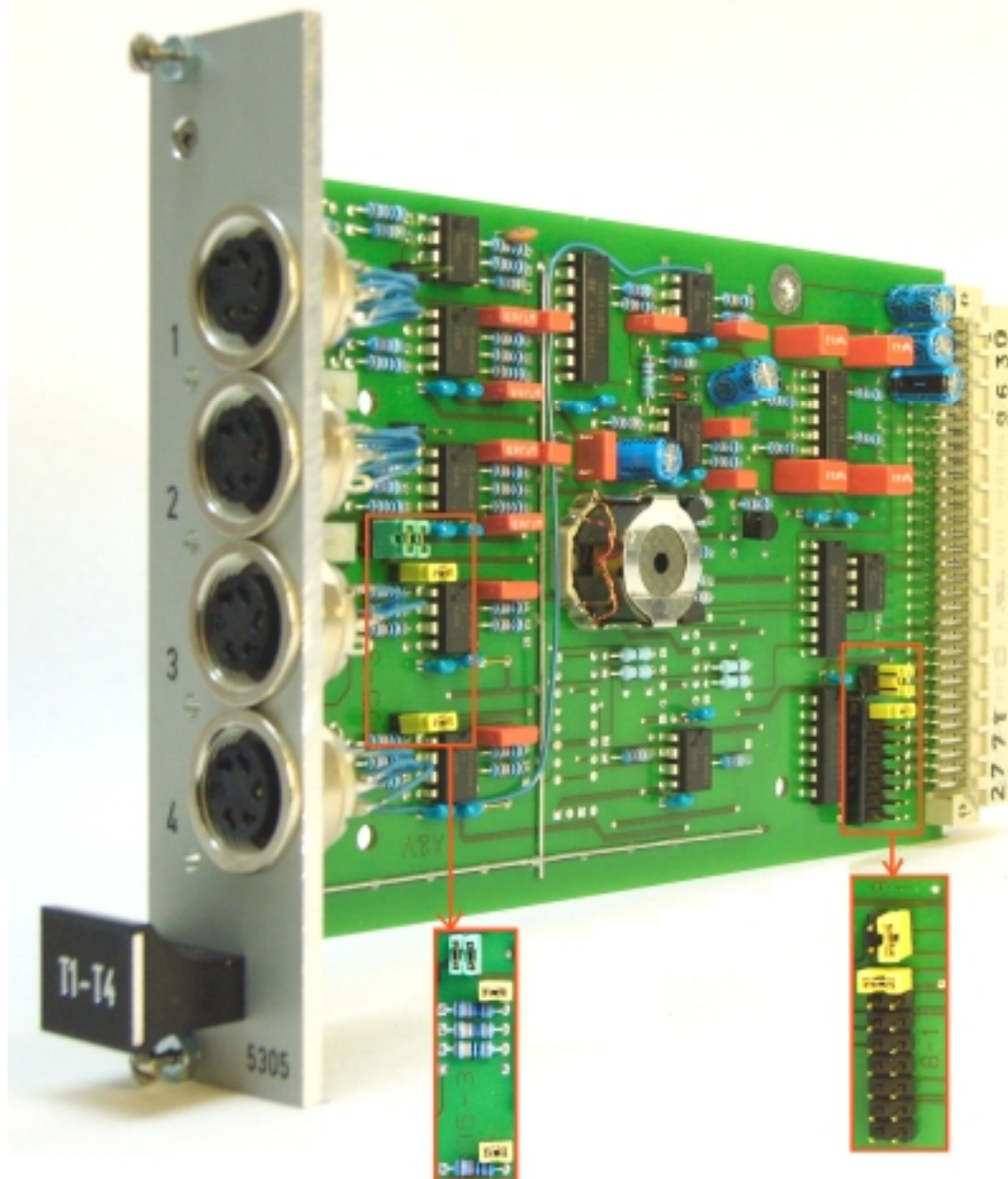
Address jumper: 0

7.3 4-channel strain gauge measuring amplifier 5305.630

Connection T1-T4

T1-4 (1): 5-pole socket 680: input torque gauge bar

T1-4 (3-4): 5-pole socket 680: M40079.V40: inputs force signal



Default settings T1-T4 for torque measuring units
M40079.V30 and M40079.V40

Technical data and security instructions according to VDE 0411

A&V Measuring Computer	A&V 8817.653 with colour monitor	A&V 8861.600 without monitor
Warm-up time	20 min.	20 min.
Max. ambient temperature	0...+40 °C	0...+40°C
Atmospheric humidity	up to 75% rel.	up to 75% rel.
Power supply voltage	230V/115 VAC 50/60 Hz	24 VDC
Power consumption	19-20 W	17 W
Protection classification	IP20	IP20
Case dimensions WxHxD without connectors	335x200x220 mm	335x133x200 mm
Case dimensions WxHxD incl. space for connectors	340x200x270 mm	340x180x260 mm
Fixing	-	35 mm DIN top-hat rail
Weight	approx. 5 kg	approx. 3 - 3,5 kg
Security	according to VDE 0411, protection class 1	according to VDE 0411, protection class 1

This unit was built and checked under DIN 57411 part 1/VDE 0411 part 1 and left the factory in a safe and perfect condition. To preserve this condition and to guarantee a safe working the user has to follow the comments and warnings which are given in these instructions. Before turning on the power, you have to make sure that the voltage of operation and the mains voltage correspond. The mains plug may only be inserted into a socket with ground contact. The safety effect may not be abolished by an extension lead without ground connection. The opening of covers or removing of components, except if it is possible to do by hand, might uncover parts or connections under dangerous voltage. Racks may only be used inside a cover. If an adjustment, a maintenance or a repair at the opened unit under voltage is unavoidable, it may only be done by a qualified employee, who is well acquainted with the dangers involved.

ATTENTION:

After the end of those works, the unit has to be checked according to VDE 0411, part 1. You have to make sure, that only fuses of the given type and values are taken for replacement. The use of mended fuses or short-circuiting them is inadmissible. If it is presumed, that a safe working is not possible, you have to take this unit out of work. Safe work may not be possible, if

- there are visible damages at the unit.
- the unit does not work.
- after longer storage under unfavourable circumstances.
- after heavy stress of transport.