User's Manual: M40098.V11

### M40098.V11 Axial Elasticity Measuring Unit

Conte	ents:	Page
1. 1.1 1.2	Functions Measuring task Display of measuring results	2 2 2
2.	Construction	2
3.	Connection elements	3 - 6
4. 4.1 4.2 4.3 4.4 4.5 4.6 4.7 4.8 4.9 4.10 4.11 4.12 5.	Programming F5 AUTO/SETUP Selection of operation modes AUTOMATIC or SETUP F1 Settings F2 Backup of measuring values F3 Backup of diagnostic data F4 Backup/Restore settings F8 Set zeros Checking calibration F9 Set positions IN-Test Configuration menu OPTION: Two measuring tracers A and B OPTION: Importing settings via the PLC OPTION: Import of job number and drawing/material number via barcode scanner Operating mode AUTOMATIC	7 7 - 8 9 - 10 10 11 12 12 13 14 15 - 17 17 17 17 - 18 18 - 23
6.	Connection schematics	23 - 29
7. 7.2 7.2.1 7.2.2 7.2.3 7.3 7.4 7.4.1 7.4.2 7.4.3	Settings of function modules USB Interface module 5326.620/630 I/O Profibus module 32-Bit profibus module 5315.610 128-Byte profibus module 5327.610 128-Byte profinet module 5338.610 DAC module 5314.630 Measuring amplifier 4-channel strain gauge measuring amplifier 5305.630 2-channel force measuring amplifier 5344.610 4-channel measuring amplifier 5305.610	30 30 - 31 32 33 34 35 36 36 37 38
Tech	nical data and security instructions according to VDE 0411	39

### M40098.V11

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

Examination of the axial elasticity of axial joints.

Elasticity is measured by push and pull load with a programmable tester and checked for compliance with its tolerance.

#### 1.2 Display of measuring results

The measured value is displayed as numerical value. In addition, the result of classification is displayed, i.e. GOOD or NOT GOOD.

Furthermore, the signal response of axial movement is represented as a curve over the time axis.

### 2. Construction

- 1 strain gauge measuring amplifier force, position
- 1 inductive measuring amplifier displacement (OPTION: additional second measuring channel displacement)
- 1 profibus interface to PLC with 32bit input, 32bit output
- analysis software

The following measuring computers are available:

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 or A&V 8817.655 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.

Page 2 of 39

**User's Manual:** M40098.V11

### 3. Connection elements

Back of case:

### Type 1:



X408	15-pole plug MIN D
X404	PS-2 socket
X407	RJ45 socket
X403	USB socket
X413	USB socket
X423	USB socket
X412	Internal USB
X314	9-pole socket MIN D
X315	6-pole socket 680
T1-4/1	5-pole socket 680
T5-8/2	5-pole socket 680
T5-8/2	5-pole socket 680
T1-4/3	5-pole socket 680
X401	8-pole plug

**Output VGA monitor** Keyboard/mouse input Ethernet interface **USB** connection **USB** connection **USB** connection Test socket (DO NOT USE) Profibus interface Output to servo valve Input strain gauge load cell Input tracer displacement A **OPTION:** Input tracer displacement B Input signal for carriage position 0 ... 10V Power supply 24V DC

Page 3 of 39

### User's Manual: M40098.V11

### Type 2 (Control interface PLC Profibus 4-Byte):



X408	15-pole plug MIN D
X404	PS-2 socket
X407	RJ45 socket
X403	USB socket
X413	USB socket
X423	USB socket
X412	Internal USB
X314	9-pole socket MIN D
X315	6-pole socket 680
T1-4/1	5-pole socket 680
T1-4/3	5-pole socket 680
T5-8/2	5-pole socket 680
T5-8/2	5-pole socket 680
X401	8-pole plug

Output VGA monitor Keyboard/mouse input Ethernet interface USB connection USB connection USB connection Test socket (DO NOT USE) Profibus interface Output to servo valve Input strain gauge load cell Input signal for carriage position 0 ... 10V Input tracer displacement A OPTION: Input tracer displacement B Power supply 24V DC

### **User's Manual:** M40098.V11

### Type 3 (Control interface PLC Profibus 128-Byte):



X408	15-pole plug MIN D
X404	PS-2 socket
X407	RJ45 socket
X403	USB socket
X413	USB socket
X423	USB socket
X412	Internal USB
X314	9-pole socket MIN D
X315	6-pole socket 680
T1-4/1	5-pole socket 680
T1-4/3	5-pole socket 680
T5-8/2	5-pole socket 680
T5-8/2	5-pole socket 680
X401	8-pole plug

**Output VGA monitor** Keyboard/mouse input Ethernet interface USB connection **USB** connection USB connection Test socket (DO NOT USE) Profibus interface Output to servo valve Input strain gauge load cell Input signal for carriage position 0 ... 10V Input tracer displacement A OPTION: Input tracer displacement B Power supply 24V DC

Page 5 of 39

### **User's Manual:** M40098.V11

### Type 4 (with 2-channel force measuring amplifier):



X408	15-pole plug MIN D
X404	PS-2 socket
X407	RJ45 socket
X403	USB socket
X413	USB socket
X423	USB socket
X412	Internal USB
X314	9-pole socket MIN D
X315	6-pole socket 680
T1-4 /1	6-pole socket 680
T1-4 /3	5-pole socket 680
T5-8/2	5-pole socket 680
T5-8/2	5-pole socket 680
X401	8-pole plug

Output VGA monitor Keyboard/mouse input Ethernet interface **USB** connection **USB** connection **USB** connection Test socket (DO NOT USE) **Profibus interface** Output to servo valve input force sensor +/-10V alternative input force sensor +/-10V Input tracer displacement A **OPTION:** Input tracer displacement B Power supply 24V DC

Page 6 of 39

M40098.V11

#### 4. Programming

Switch power ON. After loading the program, the unit is in the operation mode AUTOMATIC and ready to work. In order to make settings, switch into the SETUP mode by entering the password.

The menu line shows the key allocation of the available sub-functions:

F1 Settings

F2 Backup of measuring values

F3 Backup of diagnostic data

F4 Backup/Restore settings

- F5 AUTO/SETUP
- F8 Set zeros

Selection of operation modes SETUP or AUTOMATIC F5 AUTO/SETUP By pressing the button F5, the input window for entering the password is opened.



Page 7 of 39

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

puts	Outputs	Setting	2		Result
tart	Startposition	Axial L	JCL ym	Drawing no.	Description
AxiaLela	sticity.measuring.unit_300:pa	issword			× aterial
in cla Plea	se enter 8-digit passw	vord:			feld
cady					ralues
SET					cation
	1 2	3	4	5	
	6 7	8	9	0	Inspec
TUP					
Tracer act.val.	yn B:Tracer act.val.	ym			40 50 50 100
0.9 rce act.val. N	1.3			0 20	+0 60 80 100
20			F5	F	8 INI
dt & Vo8 M4009	8.V11	F1:settings F2:mear	s.val. to disk F3:char	t to disk F5:AUTO/SETUP	

Page 8 of 39

**User's Manual:** M40098.V11

### 4.1 F1 Settings

dal.elasticity.measuring.unit_300 xial.elasticity.measuring.unit_300:Sett	ings	2
Part no. 1	kp 150	
Axial UCL ym 55	ki 4	
Axial LCL ym 20	Factor (kp+ki) 4	
Axial offset ym 8	location prueffeld	
Nominal force N 2500	job number 123456789012	
Period zec. 1	Drawing no. 123.456.789.012.34	
No. of conditioning 1	Description testmaterial 1	
OnScreen Keyboard ON	ACCEPT ACCEPT	

Selection only possible in SETUP mode!

The ratings are entered into the input fields one after the other. By pressing the TAB key, the next field is selected.

If the respective value is darkly marked, it may be overwritten by entering the new value. The old value may be kept by pressing ENTER.

After all fields have been edited, the input menu is closed by pressing ACCEPT.

Meaning of the individual input fields:

Axial elasticity UCL: Axial elasticity LCL: Axial elasticity LL:	upper control limit for the axial elasticity lower control limit for the axial elasticity lower tolerance limit for the axial elasticity VERY SMALL <b>(OPTION)</b>
Axial elasticity offset:	constant correction factor for the axial elasticity in order to correct mechanical offset
Nominal force:	peak value of force for pull and push in N
Period:	time of a pull/push cycle in seconds
No. of conditioning:	number of pull/push cycles before the measuring cycle
kp:	proportional part of the PID controller
ki:	integral part of the PID controller
Factor (kp+ki):	sum factor

Page 9 of 39

**User's Manual:** 

M40098.V11

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

### 4.2 F2 Backup of measuring values

Selection only possible in SETUP mode! The measuring values will be stored onto the external USB storage medium in PPQ5 format.

4.3 F3 Backup of diagnostic data

Selection only possible in SETUP mode!

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

Page 10 of 39

**User's Manual:** M40098.V11

### 4.4 F4 Backup/Restore settings

Selection only possible in SETUP mode! The sub-menu opens:

Axial.elasticity.measuring.unit	_300	×
Axial.elasticity.measuring.unit	L_300:F4:	×
	F4: backup settings	
	F5: restore settings	
	F4 F5	
	F9: Cancel	
	F4: backup settings F5: restore settings F4 F5 F9: Cancel	

### F4 Backup settings

The ratings are stored onto the external USB storage medium.

#### F5 Restore settings

The ratings are restored from the external USB storage medium.

F9 Cancel Close sub-menu.

04/2020

Page 11 of 39

User's Manual: M40098.V11

#### 4.5 F8 Set zeros

Selection only possible in SETUP mode! The actual force value is set to zero.

#### 4.6 Checking calibration

If no reference measuring device is available, the calibration may be checked with the help of a defined weight which is attached to the collet chuck.

Example: A weight of 50 kg corresponds to approximately 500 N or 0.5 kN.

The procedure is as follows:

Discharge load cell and set actual force value to zero with function key F8 (cf. 4.5). Check the actual force value which is being displayed. Attach defined weight to the collet chuck and check the actual force value which is then being displayed. If the actual value displayed deviates from the actual value of the weight, the procedure is different depending on the force sensor model:

#### Strain gauge sensor 2mV/V:

If the deviation is less than +/- 15%, the calibration may be fine-tuned with the hidden adjuster at the input plug T1-4/1 (cf. 3. Connection elements).

If the deviation exceeds 50 %, please contact your maintenance department.

If the deviation is higher than +/-15%, an adaption may be carried out by changing the scale factor in the parameter files (c:\daten\eingab\*.tol, line 7; \* = part No.).

The scale factor is calculated according to the formula:

Example for strain gauge sensor HBM, measuring range = 10kN (2mV/V)

Line 7 = measuring range/5000kN = 0,002 (display measuring unit in kN)

Line 7 = measuring range/5kN = 2 (display measuring unit in N)

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

### Piezo sensor Kistler +/-10V:

The measuring ranges 15000N or 30000N are adjustable through a control voltage at the sensor.

If the measuring unit contains a force measuring amplifier A&V 5344, the measuring range for the sensor is defined through the setting of a link plug (cf. page 36).

If the measuring unit contains a strain gauge measuring amplifier A&V 5305.630, the measuring range for the sensor is defined in the respective connection box at the machine. For calculating the scale factor, the information contained in the measuring protocol of the Kistler sensor is needed.

The scale factor is calculated according to the formula:

Example for Kistler MEASURING RANGE 1: 30000N == 7,87V Line 7 = (10,0/7,87) \* (30000/10000) = 3,812) Line 7 = 3,812: measuring unit: 7,87V == 30000N

Example for Kistler MEASURING RANGE 2: 15000N == 7,809V Line 7 = (10,0/7,809) \* (15000/10000) = 1,9209) Line 7 = 1,9209: measuring unit: 7,809V == 15000N

If the actual force deviates from the nominal value by factor 2 or factor 0.5 with a Kistler sensor, the setting for the measuring range and the scale factor do not fit to each other. In this case, the scale factor needs to be set for the respective alternative measuring range.

User's Manual:

M40098.V11

#### 4.7 F9 Set positions

Selection only possible in SETUP mode!

Move the carriage into the required position by pressing F6/F7. Then confirm with the respective key F1/F2/F3.

Axial.elasticity.measuring.unit_300			
Axial.elasticity.measuring.unit_300: F9:	×		
F1: Set clamp position			
F2: Set nome position			
F3: Set intermediate position			
F6 F7			
F1 F2 F3			
F9: Cancel			

M40098.V11

### 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.

Axial.elasticity.measuring.unit_300	¢
Axial.elasticity.measuring.unit_300:1/0-Test	]
Steuereingang Wort: 0 000000000000000000 Wort-Nr. <	
1 2 3 4 5 6 7 8   10 -10 -8 -6 -13 -10 -8 -9	
X Version: 340-DACKKVDCJEEL-SOW1513.630	
8817-539	
0017-000	
Aandt & Voß I-D-TEST	
· · · · · ·	۲

#### 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".

AciaLelasticity.measuring.unit_300	×
AxiaLelasticity.measuring.unit_3002<	X
Create new password	X

40098V11E 04/2020 Page 15 of 39 Arndt & Voß GmbH - Eichhofstr. 7 - D 21255 Tostedt/Germany Telefon ++49 (0) 4182-289 760 Fax -289 761 email: info@arndtundvoss.de https://www.arndtundvoss.de

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).



40098V11E 04/2020 Page 16 of 39 Arndt & Voß GmbH - Eichhofstr. 7 - D 21255 Tostedt/Germany Telefon ++49 (0) 4182-289 760 Fax -289 761 email: info@arndtundvoss.de https://www.arndtundvoss.de

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: Two measuring tracers A and B

For measuring the axial elasticity (A+B)/2.

Both measuring tracers need to be positioned exactly into the measuring position by at least +/- 0.6 mm!

### 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 26 (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 27 (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.

40098V11E 04/2020 Page 17 of 39

# Arndt & Voß GmbH User's Manual: Elektronik - Meßtechnik м40098.v11

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. Operating mode AUTOMATIC

The measuring computer awaits the start signal from the PLC. The following parameters are displayed:

Measuring value and classification of the axial elasticity The measuring value process of the displacement of the former measurement Status: 0: ready for measuring

Course of force diagram

The black curve shows the nominal course of the force.

The red line shows the actual course of the force.

The green line shows the position of the measuring tracer.

40098V11E 04/2020 Page 18 of 39

In case of an error ocurring, a respective notification is displayed and the classification is set to NOT GOOD.



Page 19 of 39

### F8 (Automatic)

After starting the measuring program, the nominal and actual course of force is displayed.

Axial.elasticity.measur	ring.unit_300			3
Inputs	Outputs	Settings	Result	
Start	Startposition	Axial UCL ym	Drawing no.	Description
•	•	55	001.002.003.004	testmaterial
Pin clamped	Clamp pin	Axial LCL ym	job number	location
•	•	20	09033001	prueffeld
Ready	Tracer free		Part no.	No. of values
•	•		32	1
RESET	Intermediate pos.	Nominal force N	Axial ym	Classification
•	۲	2500		1.1
Start interm. pos.	Step	Period sec.		
•	Gr.Fr.	1	Course of force	Inspect
Start home pos.	Nominal force N Step	No. of conditioning		
•		1		
SETUP		Offset Position		
•		200		
Position act.val. mm			4	
199.84				
Tracer act.val. ym			-	
-991.4				
Force act.val. N				
2			F5	F8
Aindt & VoB M40098.V11	F1:settings F2:neas.val. to dis E4:backup/cetore settions F8	k F3 chart to disk F5 AUTO/SE set force Zerokhart ON/DEF	TUP	
Version: 3205W1509	Position: F6:UP F7:DOWN F8:	SET positions		

Repeatedly pressing the key F8 opens the following diagrams:

- a) statistics diagram
- b) axial elasticity diagram
- c) statistics diagram

d) diagnosis diagram

a) statistics diagram

etc.

40098V11E 04/2020

Page 20 of 39

Statistics: Quality cards axial elasticity X/Xavg



Page 21 of 39

**User's Manual:** M40098.V11

#### Axial elasticity ym diagram



Page 22 of 39

User's Manual: M40098.V11

### Diagnosis X315 (V) diagram



#### 6. Connection schematics

Arndt & Voß GmbH **User's Manual:** Elektronik - Meßtechnik M40098.V11 Servoventil ODER Motorspindel servo valve OR electric drive 2 Amdt & Voli Genti-H Elichhofstr, 7 - D 21255 Tostedt http://www.amothofdvolss.0e Tel.++45 (0) 4182 285 -780 Fax. -7 (OPTION: Only if position control is done from measuring computer) (OPTION: Nur wenn Positionsregelung durch den Meßcomputer) KrattmeBdose load cel 6p. 680 20315 5314 DAC St. 630 8 Meßrechner / measuring computer ġ Weggeber Schittenposition input carriage position F moer K 5305 St. 630 ≧ P P 17,10,13 engl. Bec 23.00,15 Seitenn. 5305 51.630 ≧ ピ 5315 10 Induktivtaster Axialspiel Induktive tracer axial elast 9p.SUB-D Profibus X314 X407B ETHERNET Induktivtaster Axialspiel nductive tracer axial elast Versorgung / power supply ž 5326 ADC (OPTION: 2-tracer measurement) (OPTION: 2-Tastermessung) Maschinensteuerung (SPS) 112-127 144-159 80-95 16.31 48-63 z machinecontrol (PLC) 28-143 96-111 32-47 64-79 00-15 5 FRE ž 312 315 314 VO-Nr.

### **User's Manual:**

M40098.V11



Page 25 of 39

**User's Manual:** 

M40098.V11



Page 26 of 39

**User's Manual:** 

M40098.V11



Page 27 of 39

**User's Manual:** 

M40098.V11

ι			•				-		-		
	Ein- / Ausoänge				Eingänge von der S	SPS			Ausoance z	ur SPS	
_	1					2					1.
	Auftragsdaten (ASCII-String)			BIT-N	Wort 0 Bi	Į,	Wort 1	Ë	Nr. Wort 0	Br-N	r. Wort 1
	Bedeutung Byte Mr. S	Stellenzat	N (Bytes)	٩	Start zur Spannpos.	•	Typer: Bit 0	•	Grundstellung	É O	rpre. Bit 0
		2		-	Freigabe	÷	Typer. Bit 1	1	Zapfen spannen	E.	pre. Bit 1
	2	3		N	Zapfen gespannt	N	Typer. Bit 2	N	Wegtaster ist frei	2	pnr. Bit 2
	Ctr - tr2 European	3 8	Gruppe 1	2		5	Typer. Bit 3	2	Massienung OT	3	pmr. Bit 3
	Autoragain. 44 - 05	3 8		4		-	Typer. Bit 4	4	Massierung GUT	1	rpm. Bit 4
-	CO - +O			40		un.	Typer. Bit 5	un.	Klassierung UT	E S	pmr. Bit 5
	Einstellwerte (Binärzahl 16Bit Integ	er)		9		9	Typer. Bit 6	ца С	Kraftfehler	9	/pmr.Bit 6
	Axialspiel (0,001 mm) OEG 84 - 85	201		2		2	Typer. Bit 7	~	(Klassierung UUT)	L L	pre. Bit 7
	Axialspiel (0,001 mm) UEG 86 - 87	24		-	RESET	00			Zwischenposition	8	
-	Axialspiel (0,001 mm) UT 88 - 89	2		m	Start zur Zwischenpos.	m			Tastedehler	6	
	Axialspiel (0,001 mm) Offset 90 - 91	N		₽	Schitten Aufwärts	₽		=	Kraftüberschreitung	₽	
	Softwert Proficraft (N) 92 - 93	2	Gruppe 1	E.	Schitten Abwarts	Ξ		Ē		E,	
	Periodendauer (0,1 s) 94 - 95	2		12	Start zur Ruhepos.	12	F8: Kraft Nullpunkt setzen	12		12 K	raft Nullpkt. gesetzt
_	VorlastZyklen 96 - 97	2		1		₽		ф.		ф 8	pannkraft BEREIT
-	Krattregler kp 98 - 99	N		4	Reset Piezo Kraftsensor	4	SPS Gruppe 2 BEREIT	2		14	aGwerte BEREIT
	Krattregler ki 100 - 101	2	Guppe 2	15	EINBICHEN	1	SPS Gruppe 1 BEREIT	1	EINRICHTEN	15 0	bemahme FERTIG
	Krathregler Faktor (kp+ki) 102 - 103	2					parallel moglich				
	Reserve 104 - 111	-					Meßzyklus u. Datenü	bertra	agung SPS - Meßrech	Iner	
	Meßwerte (Binärzahl 16Bit Intege	Ē					0 tota				
	Bedeutung Byte Nr. S	Stellenza	il (Bytes)				Grundetellune	1			
	Avidencial (0.001 mm) 112-113	1					pulling and a second	][			
	Istwert Prüftraft (N) 114-115	N					Meßwerte BEREIT				
_	Spannkraft 116-117	N					atenbytes Ausgânge	1			
	Istwert Kraft (N) 118-119	5					Datenbytes Eingänge				
	Istwert Taster A (0,001 mm) 120-121	2					SPS BEREIT				
	Istwert Taster B (0,001 mm) 122-123	N					Obemahme FERTIG				
	Istwert Position (mm) 124-125	2				819	3.06.15 Selennr. 2.12.14 Ausoraba Intruster Nultru	nti sat			
	Reserve 126-127	5				-	3.09.14 Typer. Bt 5-7	A Party in	03 03 17 Reset Plezo	A v	the set of some second shared to
	Die Einstellwerte jeder Gruppe müssen in Die Einstellwerte Auftragsder werden h Die Einstellwerte werden vom Medzacher Einstellwerte von der SPS überschreiben	ar zur Ko	mplett überti ntrolle an di	Bgen we wenn Ax 8 SPS zi im Eings	rden, oalspiel OEG = UEG ist. untickgageben. abemenu programmierten Wete.	(పచచచి	gánzungen 15.86.12 gánzungen 21.08.12 céegung Tvpor. 25.10.12	Eichhoft http://w Tell +++	br. 7 - D 21265 Testedt ww. amdburdwoss.de 9 (0) 4182 289 -760 Fax761 to@amdturdwoss.de		sivertaur Option 'P' nübertragung Cristelleverte
_	MeBwerte von der SPS werden vom MeB	Srechner	gnoriert.				rister.A Detarr. allatabr: CAD-N	4000	06.12 ArtikeHrt. 2V11b5	50H	SV11 Rev 0 the 5 van 7

Page 28 of 39



Page 29 of 39

### 7. Settings of function modules

The following pages give an overview of the function modules which are contained in the axial elasticity measuring unit M40098.V11 as well as of their specific settings.

#### 7.1 USB Interface module 5326.620/630

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

#### Version 5326.620



**User's Manual:** M40098.V11

### 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)

User's Manual:

M40098.V11

### 7.2 I/O profibus module

The axial elasticity measuring unit contains an I/O profibus module. Depending on the version of the measuring program, one of the following two models is used:

#### 7.2.1 32-Bit profibus module 5315.610

Connection X314 9-pole socket MIN D: control interface PLC profibus



Example of profibus address: "02": X10 = 0, X1 = 2 Address jumper: 3 and 4

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 <u>www.arndtundvoss.de/5315.610E.pdf</u>.

User's Manual: M40098.V11

### 7.2.2 128-Byte profibus module 5327.610

Connection X314 9-pole socket MIN D: control interface PLC profibus 128-Byte



Example of profibus address: "02": X10 = 0, X1 = 2 Address jumper: 3

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 <u>www.arndtundvoss.de/5327.610E.pdf</u>.

**User's Manual:** M40098.V11

### 7.2.3 128-Byte profinet module 5338.610

Connection X314



Address jumper: 3

Page 34 of 39

User's Manual: M40098.V11

#### 7.3 DAC module 5314.630

The axial elasticity measuring unit contains a DAC module 5314.630.

Connection X315

6-pole socket 680: output to servo valve



When exchanging this module, the link plug on the new module has to be set exactly like on the old module.

User's Manual: M40098.V11

#### 7.4 Measuring amplifier

The axial elasticity measuring unit contains two measuring amplifiers. For the measuring amplifier T1-T4 one of the following two models is used:

#### 7.4.1 4-channel strain gauge measuring amplifier 5305.630

Connection T1-T4

T1-4 /1: 5-pole socket 680: input strain gauge load cell T1-4 /3: 5-pole socket 680: input signal for carriage position 0 ... 10V



Default settings T1-T4 for axial elasticity measuring unit M40098.V11

User's Manual: M40098.V11

#### 7.4.2 2-channel force measuring amplifier 5344.610

Connection T1-T4 T1-4 /1: 6-pole socket 680: input force sensor +/-10V T1-4 /3: 5-pole socket 680: alternative input force sensor +/-10V



Default settings T1-T4 for axial elasticity measuring unit M40098.V11

User's Manual: M40098.V11

### 7.4.3 4-channel measuring amplifier 5305.610

Connection T5-T8

T5-8/25-pole socket 680: input tracer displacement AT5-8/25-pole socket 680: OPTION: input tracer displacement B



Default settings T5-T8 for axial elasticity measuring unit M40098.V11

### 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 this 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 be done only 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 work is not possible, you have to take this unit out of work. A safe work may not be possible,

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