Manual PRO-TEST

Test Automation

Software Manual





Test Automate

Software Manual

Testautomat im Kofferformat

Handliches, portables Testsystem für Gasentladungsableiter und Schutzmodule in Magazinen

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- 1. SETUP Setup software and install, Informationen of System
- **1.1 COM** connect tester to PC

How to connect tester and PC:

As part of the program package we deliver a COM-cable, which connects the tester to the serial COM-interface of the PC. The round plug is to be plugged , into the tester depending on the model on the front panel (A4603) or on the upper side (A4602). The 25- pin connector may be inserted directly into the COM- connector of the PC. For 9-pin connections there is an adapter cable added. The 25-pin connector contains optical couplers, which guarantee sufficient isolation to prevent disturbances by high voltage impulse, which can be generated by the test equipment.

Please plug in COM-cable here.





USB-Connector:

We have added an USB to serial converter to the COM-cable.

You find the drivers delivered with the converter on the stick in directory \USB2serial\ and the latest driver from the manufacturer of the chipset in \FTDI-USB232 driver\ together with some installation guides

After installing the driver take a look at the Device Manager of Windows, click on Ports (COM & LPT) and notify the number of USB Serial Port e.g. (COM3).

Any number from 1 to 9 will do.

You will need this number to connect the software to the test device.



1.2 Software install, start und setup

PC Hardware :

Personal Computer (PC) with operating Windows XP oder 7, a serial interface COM1..7 or an USB-port to connect test systems and a single sheet printer for DIN A4 pages to generate reports.

Installing Software and start:

You got PRO-TEST program system as live version on an USB-stick. Which means no installation necessary. The program can be started immediately on the stick: \PRO-TEST\A46\A46.exe

using Windows-Explorer (not internet explorer) select and start (double click)

If the software is intended to run always on the same PC, building a connection may be useful. At old versions of Windows please consider to define as working directory the directory which contains the program (A46.exe).

At interconnected systems it's possible to install the software on a network drive, direct data files to a network file or export data files to a network file. AT start of the program main window appears **—** × A46 - TEST: Haup r TMU showing main menu **PRO-TEST A46** SW MANUAL.PD Setup and Configuration: SW MANUAL.PDF ==> 3. R TESTJOB In main menu open SETUP SW_MANUAL.PDF ==> 4 R TESTDATA R TESTORGA then choose Setup Program'. R TESTPROG TEST: SETI F4: RUN SETUP F2: <== F9: /ESC HOME R SETUP Program settings R SERVICE R Setup Program R settings for Test R Program info / actual settings F4: RUN F9: /ESC HOME Setup F2: <== Language / Sprache R Sprache R Sprache R DRUCKER First define language and R Report Kopfzeilen confirm with F2: OK R COM einstellen und testen SETUP F2: OK F9: /ESC break/abbrechen .anguage / Sprache A Deutsch PRINTER. AEnglish Extra **Printer 1:** Name of printer you want to use for reports. Main Printer. U82b01 - TEST: Printer a Printer 2: for Failure- and Repair Printer F2: OK F3: Drucker aussuchen F9: /ESC abbrechen reports. Drucker aussuchen If You want to use another printer during test. Drucker 1 PDFCreator S für Reports nach dem Test Drucker 2 KONICA MINOLTA magicolor 1600W S für Fehlerberichte beim Test A46 - TEST: choose printe ^{PD:} /ESC abd With F3: choose printer or with a F2: OK Printer F3: choose printer mouse click on S - you can select S for statistical repra printer from a list of actual printers. printer 1 **PDFCreator** choose printer F2: OK F9: /ESC abort Printer Name Text

PDFCreatorPDFCreator, PDFCreator,PDF ArchitectPDF Architect, PDF ArchitMicrosoft XPS Document WriterMicrosoft XPS Document WKONICA MINOLTA magicolor 1600WKONICA MINOLTA magicolorFaxFax, Microsoft Shared Fax,Brother PT-2430PCBrother PT-2430PC, Brothe

2	A46 - TEST: head lines	for reports, lists and sheets		_ 🗆 🗡
SETUP	F2: OK / speichern	F9: /ESC	abbrechen	
Repo	ort head line			
head lines f	or reports. lists and sheets			
Zeile 1	MIKRO-M GmbH		company name	
Zeile 2	- QIS -		department	
Zeile 3	Berdorfer Str. 16a		street	
Zeile 4	D-95349 Thurnau		ZIP city	
<				>

F4: COM check

MM OK! Test system responds all right

A46 - TEST: MIKRO-Manager COM settings

COM serial interface

COM no 4 Please select COM Port 1..9

1

Head lines for reports, lists and tables

Please enter here the text lines which shall appear as header of all reports.

COM setup

COM-nr: serial interface [1..9], which is connected to the test system.

The Nbr you can find in device manager of Windows.

With F4: check COM - you can check how the interface works.

Leave and confirm with F2: OK



F2:

οκ

Definitely no interface available under COM no.

×

ок

Interface may be occupied by another program.

At USB interface it's possible to plug off the USB-converter for a short time and plug it in again.



A working interface is found but no COM-cable. May be the COM-cable is connected to another interface.



There is a COM-cable (or similar) connected to the interface but test system doesn't answer correctly. Please connect Tester and swicht it on.

2. HANDLING general operations

2	A46 - TEST: Haup	tFenster TMU	X
PRO-TEST Program system s	A46 For Test automation	SW_MANUAL.PDF	
execute test	TJOB	SW_MANUAL.PDF ==>	> 3.
document test re	STDATA esults	SW_MANUAL.PDF ==>	> 4.
organize and edi	STORGA it lists of articles	SW_MANUAL.PDF ==>	· 5.
edit test progra	STPROG ams	SW_MANUAL.PDF ==>	× 6.
R SE setup and Info	Γυρ	SW_MANUAL.PDF ==>	-1.
R SEF Spezialists only	RVICE		
<			>

AT start of the program main window appears showing main menu with a choice of different tasks you might want to start by moving the cursor into the action field (**R**) and click on left mouse button. Then a checklist appears

2.1 CHECKLIST work using checklists

Checklists integrate several working steps and usually are treated top down. Some checklists offer different opportunities for one step, usually arranged side by side.

 The different boxes contain
 display field, action field and text field.

 Image: Contain the selected box ist tagged by a green arrow
 Image: Contain the selection using cursor keys, Return or by clicking with the mouse into display field.

 You may alter selection using cursor keys, Return or by clicking with the mouse into display field.
 Image: Contain the selection.

 Artikel neu
 F2: <==</td>
 F4: RUN
 F9: /ESC HOME

[F4: RUN] starts execution of selected box.

[F2: <==] return to calling checklist or mask

[F9: HOME] returns to main menu

[Esc]: with Esc-key you can always leave any checklist or mask, even under malfunction.

Calling Checklist out of another checklist or an input mask

In a box of a checkliste or an input mask, it's possible to call another checklist using <a>[.

So You may interrupt the actual task, to fulfil some requirements and then return to the origin.

2.2 MASK Input using masks

- settings
- sheets

- values with dimension

Screen shows a mask consisting of fixed terms (gray) and editable working areas, in which you can enter necessary inputs.

Already existing inputs are shown in working areas.

Position of input (Cursor) is to be moved by cursor keys:

- [right] : next character
- [left] : previous character
- [down],[TAB] : next field
- [up] : previous field
- and with the following Special keys :
- [ENTER] : next field
- [Home] : first character of field
- [End] : last character of field
- [Del] : delete character
- [<--] : delete character to the left
- [Ins] : switch to another insert mode

With key [Esc: abort] you can finish input at any time. All changes made are taken over but possibly not saved.

action buttons

In some boxes there are action buttons on the right of the input field, which can be activated by clicking with mouse buttons.

General meaning of the buttons:

- S = Select out of a list
- = view and edit Details
- •>A = Action, activate field (radio button)
- **R** = RUN, start action as described nearby
- [Fn] : execute function key Fn: ... (see menue) .

A special feature of the PRO-TEST System is the handling of values with physical unit - e.g.:

measured Voltage Um = | 100 | Volt

With function key [F11] you can print the actual mask .

2.3 PRINT Reports and Listings

Display as printed in client area of main window. .

Printing may be started with [F2: print]. First a dialogue box asking for the pages to print and offers a choice of [F2: OK] start printing or [F9: abort].

2.4 choose file

Existing files shown in a list to choose by cursor or mouse. Select item using [F2: OK] and start desired action (e.g. read, write ..) or abort with [F9: END].

In save mode it is possible to enter a new name in working fied (top middle) and select with [F2: OK].

2.5 set file counter

Module to set file counter and edit prefix which define format of file name created as proposal.

System proposes for each new test data file a unique name, which can be taken or edited.

File name consists of prefix = fixed part e.g. A46counter = consecutive number starting at defined state

prefix may define format of numbers e.g: A46-#### defines 4 characters for number filled with zeros if necessary. If counter exceeds 9999 prefix will be overwritten partially.

3. TESTJOB execute test

A Testjob is an order to execute a test according to a defined test program.

Depending on actual conditions you may start a testjob in different ways.

If you have to prepare conditions you may do this using

5.1 list new article

3.1 Testjob, create new using list of articles

If a suitable Testprogramm exists and the product to be tested is listed in the list of articles, it's possible to choose the article and create a new test job and start the test.

There are different lists of articles containing different groups of products. Therefore first a product group is to be chosen.



A46 - TEST: PZ TAB select one line out of list — 🗖 🔀							
select product group	F2: OK / select	F9: END					
Name	Text						
PLAN	general list						
LSA+R	LSA+ mit Widerstand AD4	6 LE10r					
LSA	LSA plus Baureihe 2 AD4	6 LE10					
ADE	Single Arrester AD19						
	-						

After that the articles of the product group are displayed to Your choice. As soon as the article has been chosen and confirmed ...

continue at Test running

21			A46	- TEST: PZ TAB choose of	one line out of list	×
		F2: OK / elect	F9:	END / abort		
NT						
NO		product code		ina	test prog	remarks
	0	GA-P230V			GA-P230	
	1	GA-P230V		1	GA-P230D	mit Abhilfe bei Erst
	2	GA-P090V			GA-P090	
	3	GA-N090V			GA-N090	
	4	GA-N150V			GA-N150	
	5	GA-N230V			GA-N230	
	6	GA-N350V			GA-N350	
	7	GA-N470V			GA-N470	
	8	GA-N600V			GA-N600	

3.2 Testjob choose new and resume

If You want to resume a test job already existing, it's possible to choose the regarding data file and start the test job at once.

The name of the data file is given in all reports and as name of exported file.

continue at Test running

A46 - TEST: PZ TAB choose one line out of list — 🗖					
F2: OK / ele	ect F	9: END			
choose file	Na	me A46-31	04	aktuell	
name	date time	size	text		
A46-3104	18.08.15 21:4	5 2547	DUS GA-N090		
A46-3103	18.08.15 21:4	5 2547	DUS GA-N090		
A46-3102	02.08.15 16:4	4 9281	DUS LS10P23	0	
A46-3101	05.04.15 22:1	2 9124	DUS LS10P23	0	
A46-3100	05.04.15 22:1	0 9124	DUS LS10P23	0	
A46-3099	05.04.15 22:0	9 9124	DUS LS10P23	0	
A46-3098	05.04.15 21:1	0 2994	DUS GA-P230	D	
A46-3097	05.04.15 22:0	7 9277	DUS LS10P23	0	
A46-3087	05.04.15 02:0	2 2994	DUS GA-P230	D	
AAC 2002	05 04 15 02.0	E 0600	DITELLE CLODOO	0D	

3.3 Testjob create new using Test programm

If there exist a suitable Testprogramm, it may be used to create a new Testjob.

The test programs available are on offer.

2	A46 - TEST: PZ TAB choose one line out of list 🛛 🗕 🗖 💌					
F2: OK / e	elect	F9: END				
choose file		Name LSA10PS	aktuell			
name	date tim	ne size	text			
LSA10P90	06.04.15 03	3:41 9193	LSA BR2 10DA 90V+25%-20% LSA10P90			
LS10P230R10	06.04.15 03	3:24 12598	LSA 10DA 230V +25-20% 10ohm +-20% I			
LS10P230R00	20.08.07 11	L:17 13157	LSA+ 10pair 230V+15/-20% R0ohm NWZ			
LS10P230D	19.12.12 10	11050	LSA+ 10pair 230V+25/-20% dark NWZ			
LS10P230	20.08.07 11	L:19 10737	LSA+ 10pair 230V+25/-20% NWZ			
LS10P090	20.08.07 11	L:20 10612	LSA+ 10pair 90V+25/-20% NWZ			
LS10N600	06.04.15 03	8:23 8604	LSA-plus 10DA 600V+/-20% LS10N600			
LS10N470	06.04.15 03	3:22 8604	LSA-plus 10DA 470V+/-20% LS10N470			
LS10N350	06.04.15 03	8:21 8882	LSA-plus 10DA 350V+/-20% LS10N350			
LS10N230	06.04.15 03	8:21 8604	LSA-plus 10DA 230V+/-20% LS10N230			
LS10N150	06.04.15 03	8:20 8596	LSA-plus 10DA 150V+/-20% LS10N150			
LS10N090	06.04.15 03	8:20 8596	LSA-plus 10DA 90V+/-20% LS10N090			
GA-P230D	02.04.15 08	3:49 4429	GDT. 230V +25%/-20% 1st time comper			

after that the system proposes the next free name for the data file, which is only to be confirmed. Her is the opportunity to define another name e.g. for special reason.

continue at Test running

21	A46 - 1	TEST: PZ TAB cho	ose one line out of	list
F2: OK / elect	F3:	new / pro	posal	F9: END
choose file	Nam	e <mark>test</mark>		aktuell
name date	time	size	text	
TEST 00.00.0	0 00:00	0	neu	
A46-3105 23.08.1	5 17:51	0	new / pr	oposal
A46-3104 18.08.1	5 21:45	2547	DUS GA-N	090
A46-3103 18.08.1	5 21:45	2547	DUS GA-N	090
A46-3102 02.08.1	5 16:44	9281	DUS LS10	P230
A46-3101 05.04.1	5 22:12	9124	DUS LS10	P230
A46-3100 05.04.1	5 22:10	9124	DUS LS10	P230
A46-3099 05.04.1	5 22:09	9124	DUS LS10	P230
A46-3098 05.04.1	5 21:10	2994	DUS GA-P	230D
A46-3097 05.04.1	5 22:07	9277	DUS LS10	P230
A46-3087 05.04.1	5 02:02	2994	DUS GA-P	230D
A46-3082 05.04.1	5 02:05	9628	DUS LS10	P230D

Overview shows test positions and number of measurements in each position.



2	4	446 - TEST		_ 🗆 ×
Warten auf Start	F2: START	F3: STOP	F9: ENDE des	s Tests
Übersicht				
LSA10				
Pos:Pin Diagn.	Pos:Pin.	Diagn.		
2: 1b: 2x	1: 1a:	2x		
4: 2b: 2x	3: 2a:	2x		
6: 3b: 2x	5: 3a:	2x		
8: 4b: 2x	7: 4a:	2x		
10: 5b: 2x	9: 5a:	2x		
12: 6b: 2x	11: 6a:	2x		
14: 7b: 2x	13: 7a:	2x		
16: 8b: 2x	15: 8a:	2x		
18: 9b: 2x	17: 9a:	2x		
20:10b: 2x	19:10a:	2x		
<pre>2T =>START 1.65s</pre>	LS10P230		Nächst	e Nr: 1

3.5 Display during test

Available test results are shown in different representations which you may choose using **page up / page down** keys:

3		A46 - TEST		_ 🗆 🗙
Warten auf Start	F2: START	F3: STOP	^{F9:} ENDE des Tests	
Übersicht				
GA 23	0V +2	25%/-2	20%	
Einzelmessplatz am Single Position at Pos. Results	Adaptereinsatz Adapter	Befund zu Nr.:	1	
0 ADE: OK		OK Pass		
]	
2T =>START 1.65s	GA-P230D	OK	Nächste Nr: 2	>

overview

Large Headline and summarily display of results in test positions labelled.

Table of measures values

2		A46 - TEST		_ 🗆 🗡
Warten auf Start	F2: START	F3: STOP	F9: ENDE des Tests	
Tabelle der Messv	verte			
no Uz-st U Volt	Uz-st no U Volt	Uz-st Uz-st U U Volt Volt	no Uz-st Uz-st U U Volt Volt	
1 234	233			
			Befund zu Nr.: 1	
2T =>START 1.65s	GA-P230D	0	K Nächste Nr: 2	

Table of measured values and faulty values tagged.

all measurements en detail

2		A46 - TEST		_ 🗆 🗙
Warten auf Start	F2: START	F3: STOP	F9: ENDE des Tests	
alle Messungen detaill	.iert			
MS No. 1:Uz-start: Uz star Uag+ s: U= 230Volt dU/dt=	t first time com = 1kV/Sec	pensation = o. I	В.	
MS No. 2:Uz-stat+: Uz sta Uag+ s: U= 234Volt dU/dt=	t. pos. = Oł = 1kV/Sec	C OK Pass		_
MS No. 3:Uz-stat-: Uz stat Uag- s: U= 233Volt dU/dt=	neg. = OK 1kV/Sec	: OK Pass	Befund zu Nr.: 1	X
			OK Pass	
2T =>START 1.65s G	A-P230D		K Nächste Nr: 2	

Detailed list of measured values, results and position of all measurements

faulty measurements en detail

as obove but only faulty measurements .

Liste of criteria

2	A4	6 - TEST		- • ×
Warten auf Start	F2: START	F3: STOP	^{F9:} ENDE des Tests	
Liste der Merkmale				
Name Wert	Dim Befund	Soll	min max	
Uz-stat+ 234 Uz-stat- 233		230	184 288	
		E	Befund zu Nr.: 1	
			OK	
			OK Pass	
2T =>START 1.65s	GA-P230D	OK	Nächste Nr: 2	

List of measured value, which are provided with tolerances including actal findings, nominal value and Limits

4. TESTDATA statistical evaluation

The whole lot of tested items will be presented. The actual testjob is the one used for test at last. Beneath you may select another testjob: select Testjob

4

.1 REPORTS print results	R show chronicle of Testjob
A46-TEST: REPORT - × REPORT F2: <== F4: RUN F9: /ESC HOME display / print REPORT - × REPORT aktual Testjob - × R brief for customers - Internal showing faulty measurements	R display single test R select Testjob R table of all values R table of passed tests R table of tests containing failure
R intern brief R showing all measured values	TEST REPORT
R select Testjob R export measured data to sheet	A variety of different types of report

TESTDATA

A46 - TEST· TESTDATA

F2: <==

R display / print REPORT R export measured data to sheet

document test results

F4: RUN

F9: /ESC HOME

Just select a testiob and take a look at the different reports available.

Typical Elements of a report are:

defect analysis : number of findings in relation to number of items

statistical numbers : mean average, standard deviation, Min- and Max values.

Histogramme : frequency distribution in 10 classes of same width and 2 extra classes (above and beneath) as bar chart

table : each single value measured is displayed in a table. Faulty values are emphasized.

4.2 EXPORT all measured values to a spread sheet

export measured data to sheet

First the data files available are on offer. The actual one ist emphasized.

With **OK** the transfer is started.

In directory \EXPORT\ the exported file will be saved under <name>.CSV . The exported file contains all measured values an can be read by a spread sheet program:

Settings separator = : Semicolon and extended identification of numbers.

As well we give the recommendation to try out. Choose a data file and take a look at the data table.

A46 - TEST: ORGA List of articles F4: RUN F2: <== ORGA F9: /ESC HOME List of articles leading to appropriate TestProgs create and maintain lists of articles / product groups The list of articles makes it easy to find R choose list of articles R edit list of articles appropriate TestProgs via the article You R list new article want to test. All You need is the number or the name R create new list of articles of the article to find the appropriate R edit header TestProg. R delete list of articles / product group

choose list of articles

Sometimes it's convenient to work with several lists for different purposes or occasions. In most cases one list is sufficient. Here You can choose the list You want to edit.

edit list of articles

This option is meant to edit existing lines.

Under product code fill in number or name of the product You want to test. Under Ind You may fill in an additional letter or digit to distinguish different levels of test. Under test program define the appropriate TestProg.

create new list of articles

This option is meant to create a new empty list.

5.1 list new article

	21	,	A46 - TEST: create an	id list new article		_ 🗆 ×
Checklist:	new article	F2: <==	F4: R	UN	F9: /ESC HOME	
list new article	HOME.TCL 500					
List a new article in 3 steps: 1. list of articles choose or create a new one	typ R choos	e of product, lis	at of articles	R create a	new one	
or create a new one 2. define TestProg 3. enter article to list of articles	de select Test Pr R out of R out of	fine Test Program available progra or list of articles testing spezifica	am of the an	ticle create new R com	Test Program pile from modules or lify	
	R enter R edit lis	ter article to lis Test Program t t of articles	t of articles o list of artic	les		

define Test program

For each article to be tested a TestProg has to be defined which contains the tests necessary and specifies the appropriate settings. One TestProg may be used for several articles.

select Test program

If there exists an appropriate TestProg, You can choose it here and carry it into the list of articles. Please consider that all changes You make to the TestProg, will affect all other articles using this TestProg. If You want to make changes only to the actual article, first create a copy of the TestProg. See modify TestProg.

out of list of articles

If there exists already an article which is tested the same way as the actual one, here You may choose this article and take over its TestProg

enter Test program to list of articles

On top of the list a new line will be inserted and the name of the actual TestProg.

Under product code fill in the number of the article to be tested. As default the number out of testjob The index [I] is set to [0]. If You plan several different tests for the same product code, You can here make sure a distinction by using a digit or a letter e.g. **F** for final test / **R** for reexamination / **P** for preliminary test.

Under remarks you may give some hints for the user.

5.2 manage TESTJOBs

To define a Testjob you need the **name** of the Testprog and a **file name** which is the name of the Testjob and of the data file recording the results.

The lists of articles help to find the **name** of the appropriate TestProg. The **file name** is automatically generated by the file counter.



Testjob will be created as data file in directory DATA\TestData .

More precise as 2 files

<name>.DUS contains a copy of TestProg and actual settings,

TestJob data and statistical data. nimmt statistische Daten auf. <name>.DUR records measured values.

To execute the test, the TestJob data file is sufficient, the original TestProg is no longer needed. Changes made to the TestProg after creation of a TestJob do not affect running testjobs. Changes made to the TestProg affect only testjobs created new.



Test specification, may be valid for several testjobs . defined by data file, file name
start and execute Testion – repeatedly possible at different times
Test sequence (MStab) once executed completely.
One Step of a test sequence
One value of a measurement.

The results are continuously recorded in the table of measured values (Mstab) but will be transferred to the data file only when the test sequence is finished.

6. TESTPROG, create and edit test programs

	A46 - TEST: TESTPROG -	
odit	TESTPROG F2: <== F4: RUN F9: /ESC HOME	
test programs and create new ones - with and without Test system	edit test programs => R modify test program R test program work on structure R test program setup R test program tolerances and parameters	MANUAL.PD
	R list new article R maintain templates	
	R compile test program from modules R module adapter - positions R module rating - parameters R module basis - test program	>

6.1 TestProg structure

The user specifies the test sequence in several lists and the system compiles thereout the complete test sequence **MStab**,



which will be executed step by step during test.

In the list **SPEC**: specification different components will be assembled. The list will be evaluated from beginning to the end step by step and determines which position is to be selected and which measurement has to proceed in this position. Thereby positions may be aggregated in groups and measurements in sequences. So it is possible to create extensive test sequences by only a few commands.

The list **POS**: Positions determines which terminals (e.g. of a magazine) are to connect and how the results are shown in the overview. Themes: Circuit, Adapter

The list REL: Relais is inactive at A46

The list **PAS**: Sets of Parameters determines the measuring methods, settings and which measured values are to be evaluated by which criterion. Themes: Components, test methods, settings, tolerances.

<u>DHW</u>: Data of Hardware describes the test system used and is delivered together with the test system completely predefined.

Checklist : how to build up aTestProg:

- A Select a template and take over
 - Always use a template because
 - 1. some inputs are the same for all tests
 - 2. a number of predefined structures can be adapted to the actual task by minor changes.
 - 3. the system is designed to easy changing everything, try out and adapt.

The choice which template to take as basis is often secondary.

B Testjob data

- 1. define a file name for the TestProg.
- 2. description
- 3. Big Text Header
- 4. general settings

C POS define Positions

Which Terminals, Circuit, Adapter etc.

- 1. Scanner combinations, position of the Scanner
 - a. Circuit of test object, which terminals are to be connected.
 - b. Choose adapter. Which terminals for which measurement...
 - c. Are there existing lists of positions regarding the circuit or adapter?
 - d. Allocate a line in the list of positions for each combination of scanner positions, name it and fill in positions of scanner. In case of A46 only 1 number.
 - e. For positions to be used, set Status active (= 3).
- 2. Figure, Display in overview.

Define position (x,y) on the screen for each active position

3. Define groups Positions supposed to be used the same way, can be aggregated to groups.

D PAS define sets of parameters

Components, measurements, parameter, tolerances

1. Allocate a line in the list for each measurement, which differs in measuring method, -parameter oder criterion -

preferably by arranging / duplicating of appropriate templates

2. CRIT Test criteria select or create and fill in tolerances.

E SPEC Test Steps

- 1. Build test sequences for each task. Consider chronology.
- 2. Select sets of parameters
- 3. Select Pos , preferably Group

F **MStab** peruse and try out

- 1. Display in overviwe, Table of measured vakues and of criteria
- 2. Measurement step by step using a good specimen and compare measured values to expected values.
- 3. trial run

6.2 TestProg modify

Duplicate a Testprog and make minor changes like tolerances and parameters .

A46 - TEST: modify test program, tolerances and parameters 🛛 🗕 🗖 💌					
Modify	F2: <==	F4: RUN	F9: /ESC HOME		
load test	program - if not ye ad test program	et done.	ad template ad external template		
Crea R d R b R A	te new escription of file g header ngaben zum Test		Jramm		
Sav	e don't f	orget!	nplate py for external treatm	ent	
edit Test	est run tolerances st program edit st	R trial run R Measure and parameters ructure	ements step by step		
<					

6.3 TestProgramm structure

	A46 - TEST: TestProg structure -	- 🗆 🗙
Access to all parts of a Testprog. Here all changes and add- ons are possible from simple parameters to complicated structural changes of the test sequence.	Testprog F2: <== F4: RUN F9: /ESC HOME Test structure Test structure -> R Test sequence ready compiled R Specification R settings for test R Positions R Positions display R Relais R DispLAY like at Test R Parameters R Diagnoses R Tolerances R Diagnoses	c1.
	R as TestProg R as Template R export for external Treatment	

7. SERVICE Sonderfunktionen für Spezialisten

2		U82b01 - TES	T: SERVICE	_ 🗆 🗡
SERVICE	F2: <==	F4: RUN	F9: /ESC HOME	
SERVICE Vorsic	ht! Bitte nicht	s verändern!		HOME.TCL 700
R COM se	etup		SW_MANUA	L.PDF ==> 7.
R System R KOPFZ R NAMEN	Directories EILEN mit For I und Kennwo	mat rte		
	IEREN			
RSpecial	Service			>