UFDF APPLICATION REPORT
ATX Hardware

ufdf - universal fixture data format V1.6

This ufdf format is a format developed by ATX that can be used in co-operation with customers.

The aim is to minimise errors and avoid misunderstandings.

BASIC IDEA
ufdf application report

The description is based on the approach that will wiring in the test fixture represents connections between different modules or within a module.

A separate line is provided in the data format for each wiring.

Modules are additional modules such as relays, load resistors, additional plugs, but also needle field(s) and interface(s), as well as power islands.

Interrelated multiple wiring (e.g. power wiring or fixture coding) is thus better conveyed.

FILE FORMAT
Excel .xlsx file

The ufdf file should be saved as an Excel .xlsx file.

It is divided into six sheets and can be extended by the customer as required.

- ✔ Position-PCB (positioning of the platinum/test specimen)
- ✔ Info (overview of wire colours, wire thickness etc.)
- ✔ Modules (all modules with important additional information)
- ✔ Wiring (complete additional wiring)
- ✔ Needle field (with coordinates, side information, etc.)
- ✔ Position additional hardware (positioning of the additional hardware in the fixture - optional)

✔ POSITION-PCB

Picture or sketch showing how the test specimen is positioned in the fixture.

✓ INFO

Overview of wire colours, wire gauges etc.

	A	B	C	D	E	F	G	H	I
1	Legende								
2									
3	Farbe (Spalte L)			Seite (Spalte K)					
4	sw	Drahtfarbe schwarz		b	Verdrahtungsseite BOTTOM -> Adapterunterseite				
5	gr	Drahtfarbe grau		t	Verdrahtungsseite TOP -> Adapterhaube				
6	bn	Drahtfarbe braun							
7	vi	Drahtfarbe violett							
8	bl	Drahtfarbe blau							
9	gn	Drahtfarbe grün							
10	rt	Drahtfarbe rot							
11	or	Drahtfarbe orange		Art (Spalte O)					
12	ge	Drahtfarbe gelb		WW	Wire Wrap				
13	ws	Drahtfarbe weiß		Loet	Kabelende angelötet				
14				Crimp	Kabelende gecrimpt				
15				Flachb	Flachbandkabelverbindung				
16	Drahtstärke (Spalte M)			Koax	Koaxialkabel -> 2-zeilige -> Signalleitung und Schirm				
17	AWG 26								
18	AWG30								
19	0.25								
20	0.50								
21	0.75			twst (Spalte N)					
22	1			#	Twisted Pair Verdrahtung (Spalte N)				
23	1.5								
24	2.5								

✓ MODULES

Each module has its own module name. All modules are listed and additional information important for fixture construction is entered.

	A	B	C	D
1	Modul_Name	Typ/Bezeichnung	top/bot	Kommentar
2	VCC	Powerinsel	b	z. B. gewünschte Verdrahtungsfarbe
3	VCC3V3	Powerinsel	b	
4	CU_GND	CU_GND/Masseplatte	b	
5	IF	GR228X	b	15Slot
6	NF	Nadelfeld	b	z.B. Platinenname
7	NF_t	Nadelfeld	t	z.B. Platinenname
8	NF2	Nadelfeld	b	z.B. Platinenname
9	NF2_t	Nadelfeld	t	z.B. Platinenname
10	FTeiler_1	Frequenzteiler	b	
11	TIC1	BoundaryScan_TIC022	b	
12	R1	Widerstand	b	1K / 5 Watt kein Kühlkörper erforderlich
13	Relais1	Relais_2xUM	b	Axicom 5V monostabil/bistabil
14	Relais2	Relais_4xUM	t	Axicom 5V monostabil/bistabil

✔ WIRING

The complete additional wiring is entered here. One line for each connection!

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	von_Modul	von_Pin	von_x	von_y	von_Info	nach_Modul	nach_Pin	nach_x	nach_y	nach_Info	Seite	Farbe	Drahtstaerke	twst	Art	Zusatzangabe f. Adapterbau	Kommentar intern
2	IF	RLY1				FTeiler_1	8				b	sw	AWG30		WW		
3	IF	37				FTeiler_1	7				b	or	AWG30		WW		
4	FTeiler_1	Pad				NF	37				b	rt-sw(rt)	AWG30	#1-1	WW		
5	FTeiler_1	2				CU_GND	1				b	rt-sw(sw)	AWG30	#1-2	WW		
6	FTeiler_1	3				Powerinseln	VCC				b	rt	AWG26		WW		
7	FTeiler_1	2				CU_GND	1				b	sw	AWG26		WW	CU_GND => Kupferplatte	
8	IF	2				FTeiler_1	4				b	or	AWG30		WW		
9	TIC1	XH200_1				IF	1279				b	rt-sw(rt)	AWG30	#2-1	WW	verdrillt mit TCK-_TIC1_X200_2	
10	TIC1	XH200_2				IF	1247				b	rt-sw(sw)	AWG30	#2-2	WW	verdrillt mit TCK+_TIC1_X200_1	
11	TIC1	XH200_5				IF	1278				b	rt-sw(rt)	AWG30	#3-1	WW	verdrillt mit TDI-_TIC1_X200_6	
12	TIC1	XH200_6				IF	1246				b	rt-sw(sw)	AWG30	#3-2	WW	verdrillt mit TDI+_TIC1_X200_5	
13	TIC1	XH100_1				NF	243				b	rt-sw(rt)	AWG30	#4-1	WW	ABSCH	
14	TIC1	XH100_2				CU_GND	1				b	rt-sw(sw)	AWG26	#4-2	WW	CU_GND => Kupferplatte	
15	IF	243				TIC1	XH101_1				b	gr	AWG30		WW		
16	IF	PS1-HI_Gruppe				Powerinseln	VCC				b	rt	AWG26		WW		
17	IF	PS1-HIS				Powerinseln	VCC				b	rt	AWG26		WW		
18	IF	PS2-HI_Gruppe				Powerinseln	VCC3V3				b	rt	AWG26		WW		
19	IF	PS1-HIS				Powerinseln	VCC3V3				b	rt	AWG26		WW		
20	IF	PS1-LO_Gruppe				CU_GND	1				b	sw	AWG26		WW	CU_GND => Kupferplatte	
21	IF	PS1-LOS				CU_GND	1				b	sw	AWG26		WW	CU_GND => Kupferplatte	
22	IF	PS2-LO_Gruppe				CU_GND	1				b	sw	AWG26		WW	CU_GND => Kupferplatte	
23	IF	PS2-LOS				CU_GND	1				b	sw	AWG26		WW	CU_GND => Kupferplatte	
24	IF	GND_Gruppe				CU_GND	1				b	sw	AWG30		WW	CU_GND => Kupferplatte	
25	IF	FixtureID				IF	ID=245				b	bl	AWG30		WW	ID=245	
26	R1	1				NF	101				b	bn	1,5		Loet		
27	R1	2				Powerinseln	VCC				b	bn	1,5		Loet		

1. Comment column

Comments can be added in the last two columns (P and Q) e.g. net names as internal comments. Information in the „Additional information for fixture" field is taken into account manually, information in the „Internal comment" field is NOT included in the fixture construction.

2. Fixture coding

The corresponding group term for this is: FixtureID = nnnn. If we have the coding key of the IF (interface), we do not need any further information apart from the coding number.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	von_Modul	von_Pin	von_x	von_y	von_Info	nach_Modul	nach_Pin	nach_x	nach_y	nach_Info	Seite	Farbe	Drahtstaerke	twst	Art	Zusatzangabe f. Adapterbau	Kommentar intern
2	IF	FixtureID				IF	ID=245				b	bl	AWG30		WW	ID=245	

3. Power groups

Power Supplies and GND´s can also be summarised as groups.

4. Power Supply

Instead of a detailed list of the interface pins to the power island, these can be summarised as a group.
PS1-HI_Group means that each interface pin of the power supply is used to supply the power island.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	von_Modul	von_Pin	von_x	von_y	von_Info	nach_Modul	nach_Pin	nach_x	nach_y	nach_Info	Seite	Farbe	Drahtstaerke	twst	Art	Zusatzangabe f. Adapterbau	Kommentar intern
2	IF	PS1-HI_Gruppe				Powerinseln	VCC				b	rt	AWG26		WW		
3	IF	PS1-HIS				Powerinseln	VCC				b	rt	AWG26		WW		
4	IF	PS2-HI_Gruppe				Powerinseln	VCC3V3				b	rt	AWG26		WW		
5	IF	PS1-HIS				Powerinseln	VCC3V3				b	rt	AWG26		WW		
6	IF	PS1-LO_Gruppe				CU_GND	1				b	sw	AWG26		WW	CU_GND => Kupferplatte	
7	IF	PS1-LOS				CU_GND	1				b	sw	AWG26		WW	CU_GND => Kupferplatte	
8	IF	PS2-LO_Gruppe				CU_GND	1				b	sw	AWG26		WW	CU_GND => Kupferplatte	
9	IF	PS2-LOS				CU_GND	1				b	sw	AWG26		WW	CU_GND => Kupferplatte	

5. GND

For some test systems, the extensive number of GND wires from the interface to the copper plate can be described by a group term (e.g. GND_Group). For example, if only every fourth GND is to be wired in the interface, this can be entered in column P additional information for fixture construction.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	von_Modul	von_Pin	von_x	von_y	von_Info	nach_Modul	nach_Pin	nach_x	nach_y	nach_Info	Seite	Farbe	Drahtstaerke	twst	Art	Zusatzangabe f. Adapterbau	Kommentar intern
2	IF	GND_Gruppe				CU_GND	1				b	sw	AWG30		WW	CU_GND => Kupferplatte	

Below are some examples for the entry in the wiring sheet:

1: Additional wiring with relay and disconnection of the standard wiring

Relay pin +1 and +1 reserve, as well as -16 and
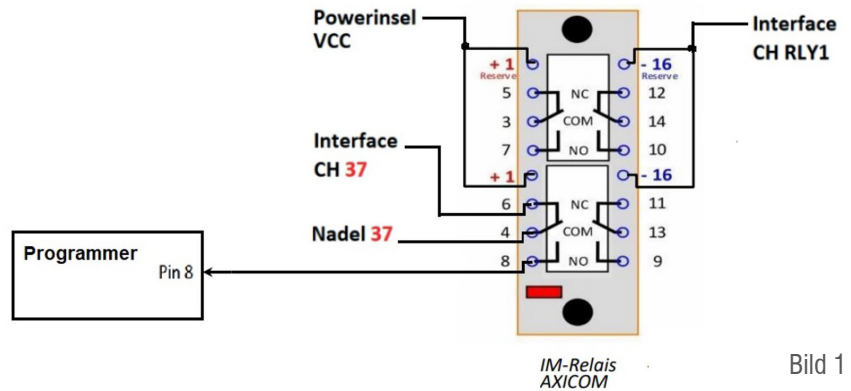-16 reserve are connected on the circuit board..

Bild 1

The direct connection of interface CH37 to needle 37 from the standard wiring is switched off by „ABSCH" in the column additional information for fixture construction, then in the wiring programme. Fixture construction, then switched off in the wiring programme.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	von_Modul	von_Pin	von_x	von_y	von_Info	nach_Modul	nach_Pin	nach_x	nach_y	nach_Info	Seite	Farbe	Drahtstae	twst	Art	Zusatzangabe f. Adapterbau	Kommentar intern
2	Powerinsel VCC	1				Rel1	1				b	rt	AWG30		WW		
3	IF	RLY1				Rel1	16				b	sw	AWG30		WW		
4	IF	37				Rel1	6				b	gn	AWG30		WW		
5	NF	37				Rel1	4				b	gn	AWG30		WW		
6	Programmer	8				Rel1	8				b	gn	AWG30		WW		
7	IF	37				NF	37				b	gn	AWG30		WW	ABSCH	

The ufdf description of circuit diagram 1 starts here from the top right (see Fig. 1), the pin RLY1 module IF (interface) is connected to pin 16 of relay1. The wiring end points are each defined by the module and pin information. The additional information ABSCH in this example automatically removes a direct connection between NF.37 and IF.37 specified by the in-circuit wiring from the ICT wiring.

6. Twisted Pair

Twisted pair wiring is labelled with # (column N):

Standard twisted pair, the GND line is connected to the copper plate or the CU_GND island. Please enter any deviations in the comments column.

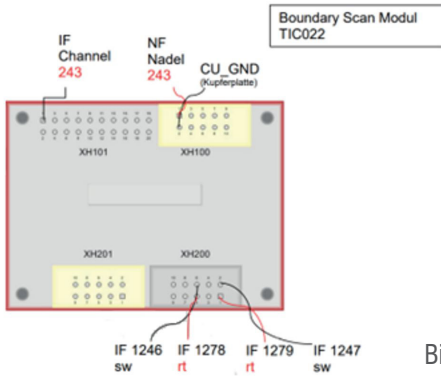**2: Additional circuit with boundary system**

Bild 2

The individual twisted pair wirings are entered in the N twst column as a pair preceded by #. #1-1 = red wire, #1-2 = black wire.

The next twisted pair would be #2-1 and #2-2 etc.

The connection interface 243, to needle 243, from the standard wiring, is switched off in the wiring programme with „ABSCH" in column N additional information for fixture construction.

7. Contacting both sides

Wiring from top to bottom runs via a transfer and is generated automatically from the tester file.
Tester file = needle list = coordination list

8. Contacting several test objects

When testing several test items, these are treated separately in the ufdf (NF, NF2 etc. / NF = needle field).

✔ NEEDLE FIELD

The individual needle fields are entered in this sheet. When testing several test items, these are differentiated - NF, NF2, etc.

	A	B	C	D	E	F	G	H	I
1	NF	CH/TP	x	y	Signalname	top/bot	Hülse	Nadel	Langhub-Nadel
2	NF	101	32,45	17,34		bot	x	x	x
3	NF	102	32,45	18,45		bot	x	x	
4	NF	103	45,67	22,12		top	x	x	x
5	NF2	198	134,12	23,67		bot	x	x	x
6	NF2	199	156,33	25,89		top	x	x	

If a separate tester file (e.g. ICT programmes) is available, the x/y coordinates and the bottom or top specifications are still used from this tester file and do not have to be entered in the ufdf sheet needle field.

✔ POSITION ADDITIONAL HARDWARE (OPTIONAL)

Here you have the option of specifying the position of your additional hardware in the fixture.