

ufdf – universal fixture data format

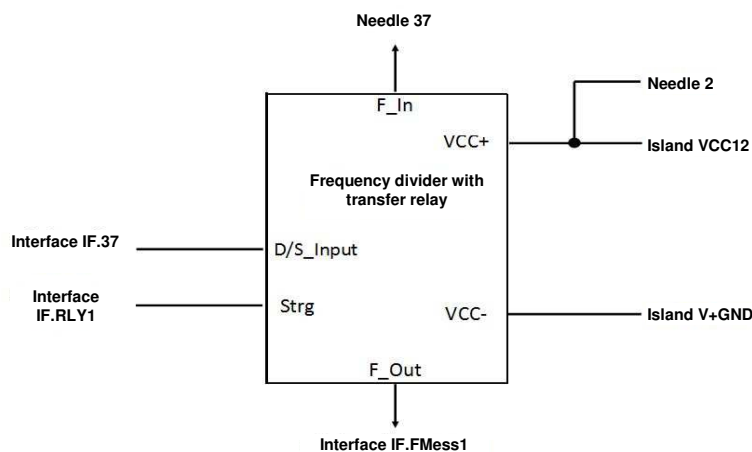
Because of the crucial role that special wirings play for the implementation of test adapters, many users wish that their description is provided in a uniform data format. For this purpose, ATX has elaborated this udfd format, in collaboration with the customer. The udfd-format can be automatically copied from ATX for the preparation and testing of the test adapter.

Base concept

The format description is based on the concept that all wirings in the test adapter are used for the connections between several modules, or within a same module. Modules are additional devices, such as relays, load resistances, extra plugs, and also needle panel (s) and interfaces like power islands. For each connection a single line is provided in the data format, but multiple wirings (e.g. power cable or adapter coding) can also be described via powerful group commands.

The implementation of this base concept is illustrated in a simple example of a wiring diagram with the corresponding udfd description.

Example for a simple additional circuit with frequency divider



Note: Please separate direct connection interface with needle 37

Example uadf+Format:

optional indications:

from_module	from_pin	after_module	after_pin	Extra info	Internal comment	Additional indication for adapter assembly
IF	RLY1	FTeiler1	Strg			
IF	37	FTeiler1	D/S_Input			
FDivider1	F_in	NF	37	ABSCH		
FDivider1	VCC+	VCC12_Island				
NF	2	VCC12_Island				
FDivider1	VCC-	V+GND_Island				
IF	FMess1	FTeiler1	F_Out			

The udfd description of the wiring diagram starts here from down left, where pin RLY1 of module E (interface) is connected to the pin strg of the frequency divider Fdivider 1. The wiring end points are defined by the module and pin indication. The copper plates and islands are excepted (here e.g. V+GND_island) because they do not require an explicit pin instruction. With the extra ABSCH info in this example the direct connection indicated by the in-circuit-wiring between NF.37 and IF.37 is automatically derived from the ICT-wiring.

Further details

File format

The udf-file is made in Excel, the file name ending is “_udf”. The file can be saved as .xlsx, .xls or .xlsm.

Module_Names

All modules have their own name, which is pre-set in sheet 1 (module) of the excel, jointly with the extra instructions. (e.g. R1, resistance 1K, 1 Watt). See Annex 1:

Extra info

Colours, wire strengths, twisted pair etc. are defined as additional info, several indications in one field are separated by a semicolon (e.g. Loet; 1.5qmm). For details, see Annex 2.

Needle list

If a separated needle list (e.g. in ICT-programs) is available, the xy-coordinates and the instruction bot or top are further extracted from this needle list. When several modules are tested for one adapter, the numbers of the needle field (e.g. NF2) are automatically assigned via the separate needle field, so that the NF indication is sufficient in the udf. However, a needle list can also be directly integrated into the udf-file as a separate sheet 3 (NF_Ref) (Annex 3)

Transfers

Normally, such wirings from bot to top which run over transfers, are automatically assigned to the transfers and do not need to be entered additionally into the udf. But there are exceptions, such as is the case with a manual transfer assignment (Annex 2)

Twisted pair

Twisted pair wirings are entered into the extra info with # or with #-1 and #-2. Only with # the GND-line is connected to the copper plate or the GND-island. #-1 and #-2 describe mutually twisted wires and are described in two lines. Further details are explained in Annex 2.

Comments lines

Comments can be provided in both last lines (e.g. network names as an internal comment). Information in the field "Additional indications on the adapter" are manually entered, information in the field "Internal comment" is not reflected in the adapter design.

Power pin groups

For an alternative detailed list in compact form of wiring indications between the power islands and the interface, the option exist to represent all pins of a power supply connection as a group, where the name is always directly referred to the name of the interface description. PS1-HI_group e.g. for a selected interface will be PS1-HI_1, PS1-HI_2 and PS1-HI_3. The following udf-line includes

IF	PS1-HI_group	VCC5_island	
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according to the wiring concept 1 or 2 wires from all three IF-pins to the VCC5 island.

GND-wiring

In some test systems also the great amount of GND-wires from the interface to the copper plate can be described by a group concept (e.g. GND_group_each_pin, GND_group_each_2nd_pin). Here automatically the currently required area is chosen.

Adapter coding

The corresponding group concept is: FixtureID =nnnn. Thus, for a clear wiring the detailed available info in the interface description does not require any further indication.

IF	FixtureID	IF	ID=245
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Annex 1: Example of a complete udf-file:



File name



Name of the table sheets

Module sheet:

Module_Name	Type	top/bot	Comments
IF	GR228X-15slot	bot	
NF	Needle panel	bot	
R1	Resistance 1K, 5 Watt		no heat sink required
Relay 1	ATX-Relay 2xUM		

'Note: Islands and copper plates should not be defined as a module. Module without top/bot indications are automatically assigned so that a minimum amount of transfer connections is reached.

Wiring sheet:

from_module	from_pin	after_module	after_pin	Extra info	Internal comment	Additional indication for adapter assembly
Copper plate		GND_D_island		Loet		
GND_D_island		IF	GND_Gruppe_jeder_2te_Pin			
IF	PS1-HI_group	VCC5_island				
IF	PS1-HIS	VCC5_island				
IF	PS1-LO_group	GND_D_island				
IF	PS1-LOS	GND_D_island				
IF	PS2-HI_group	VCC12_island				
IF	PS1-HIS	VCC12_island				
IF	PS2-LO_group	GND_12V_island				
IF	PS2-LOS	GND_12V_island				
R1	1	NF	345	Loet;1.5qmm		
R1	2	VCC5_island		Loet;1.5qmm		
IF	340	Relay1	COM1	#		
Relay1	NC1	NF	340	#,ABSCH		
Relay1	VCC	VCC12_island				
Relay1	GND	IF	RLY1			
IF	V+GND_3A60	GND_12V_island				
IF	FixtureID	IF	ID=245			

Annex 2: Detailed info for any additional info

the additional info is collectively written in one single field and separated by a ; E.g.:

Loet;1.5qmm

any additional information for wiring type										
WW	Loet	Crimp	Flatb	Coax1	Coax2	Loet_hflex	Loet_Silicon	String end	Other	
any additional information for wire thickness										
AWG22	AWG24	AWG26	AWG28	AWG30	2AWG26	3AWG26	Coax-std			
0.25	0.5	0.75	1	1.5	2.5					
0.25qmm	0.5qmm	0.75qmm	1qmm	1.5qmm	2.5qmm					
0.25qmm	0,5qmm	0,75qmm	1qmm	1,5qmm	2,5qmm					
any additional information for wire thickness										
sw	gr	bn	vi	bl	gn	rt	or	ge	rs	ws
any additional info for twisted pair										
#	twisted pair wiring, second line against GND of the copper plate									
#-1	first part of the twisted wire with individual wiring description									
#-2	second part of the twisted wire with individual wiring description									
#1-1	first part of the twisted wire no.1 with individual wiring description									
#1-2	second part of the twisted wire no. 1 with the individual wiring description									
#789-1	first part of the twisted wire no.789 with individual wiring description									
#789-Dummy	second part of the twisted wire no. 789 with dummy wiring for after modul.pin									
Wiring example for individual transfer										
from_module	from_pin	after_module	after_pin	Extra info	Internal comment	Additional indication for adapter assembly				
IF	345	Ueb1_b	345							
Ueb1_t	345	NF	345							
IF	RLY9	Ueb1_b	RLY9							
Ueb1_t	RLY9	Relay3	GND							

Annex 3: optional needle panel data in the sheet NF_Ref

NF	Pin	x	y	top/bot	size	info
NF	101	32.45	17.34	bot	100	
NF	102	32.45	18.45	bot	75	
NF	103	45.67	22.12	top	50	
NF2	198	134.12	23.67	bot	100	
NF2	199	156.33	25.89	top	40	