

Nixie Clock Main Board

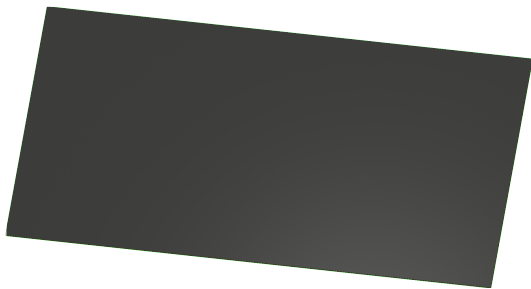
Variant: DRAFT

2026-03-01

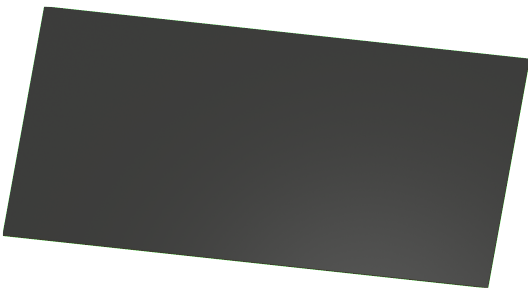
Rev + (Unreleased)

Page	Index	Page	Index	Page	Index	Page	Index
1	Cover Page	11		21		31	
2	Block Diagram	12		22		32	
3	Project Architecture	13		23		33	
4	Clock - Oscillator & Divider	14		24		34	
5	MUX Inputs - Time Logic	15		25		35	
6	Power - Sequencing	16		26		36	
7	Revision History	17		27		37	
8	MUX Inputs - Anti-Poisoning Logic	18		28		38	
9	Switching MUX	19		29		39	
10	MUX Inputs - Date Logic	20		30		40	

TOP VIEW



BOTTOM VIEW



NOTES

Nixie Clock Main Board Document

Comment

Not fitted components are marked as **X**

DRAFT - Very early stage of schematic, ignore details.

PRELIMINARY - Close to final schematic.

CHECKED - There shouldn't be any mistakes. Contact the engineer if you find any.

RELEASED - A board with this schematic has been sent to production.

Date: 01-Mar-2026

DESIGN CONSIDERATIONS

DESIGN NOTE:
Example text for informational design notes.

DESIGN NOTE:
Example text for debug notes.

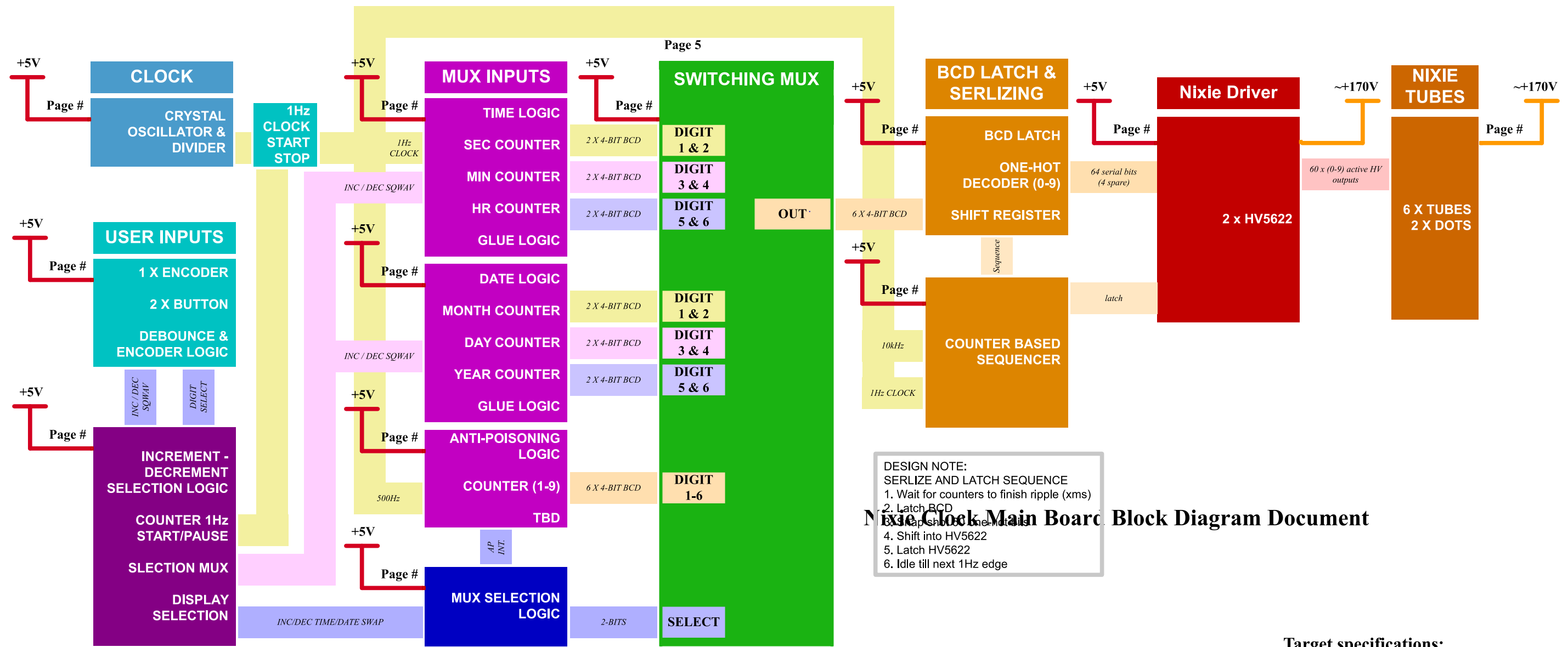
DESIGN NOTE:
Example text for cautionary design notes.

DESIGN NOTE:
Example text for critical design notes.

LAYOUT NOTE:
Example text for critical layout guidelines.

	Comments:	Company: Company Name		Variant: DRAFT	
		Board Name: Nixie Clock Main Board		Project Name: Nixie Tube Clock	
	Sheet Title:	File Name: Nixie_Tube_Clock.kicad_sch	Designer: Aidan Brzezinski	Date: 2025-01-12	Revision: + (Unreleased)
	Sheet Path: /		Reviewer:	Size: A3	Sheet: 1 of 10

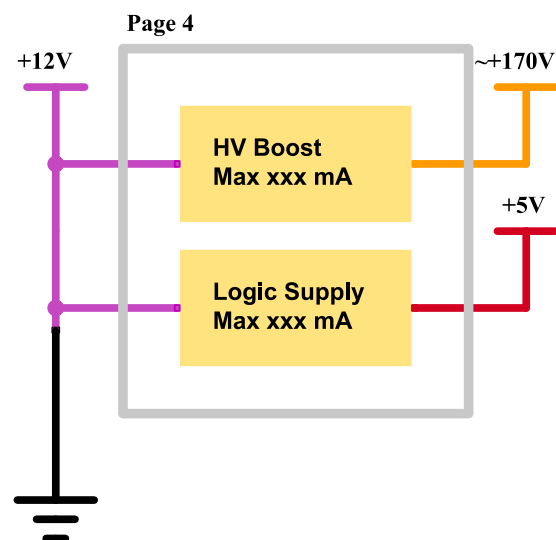
[2] Block Diagram



Nixie Clock Main Board Block Diagram Document

Target specifications:

Input voltage:	?? - ?? V
Spec 2	??
Spec 3	??
Spec 4	??



DESIGN NOTE:
TIMER FOR AP CYCLE HARD SET ~1HR NOT SURE. INCLUDE BUTTON SOMEWHERE, NOT DIRECT USER INPUT.

ENCODER FOR INCRMENT DECRMENT, 1 BUTTON FOR CYCLING THROUGH DIGITS, 1 BUTTON FOR SHOWING DATE ~15 SECONDS.

FOR INCREMENT - DECREMENT AN ENCODER INC. AND DEC. AND CYCLE BUTTON. FIRST THE CYCEL BUTTON WILL PAUSE THE 1Hz CLOCK, THEN THE CYCLE BUTTON WILL INCREMENT A COUNTER THAT WILL GO TO A MUX SELECT THAT CHANGES BTWEEN: SS, MM, HH, (AT THIS POINT THE DISPLAY WILL SWAP TOO)MM, DD, YY, THEN ENABLE THE 1Hz CLOCK AGAIN(AND SWAP BACK).

THEN EACH INC, DEC, IS PASSED TROUGH TO THE RESPECTIVE COUNTER AND PUT INTO THE INCREMNT OR DECRMENT INPUT. THE INCRMENT WILL NEED TO BE AND WITH THE RESPECTIVE INCREMNT FOR THAT COUNTER.

IMPORTANT: A COUNTER SHOULD NEVER RECEIVE AN INCREMNT AND DECREMENT AT THE SAME TIME.

	Comments:	Company:		Variant:	
		Company Name		DRAFT	
		Board Name:		Project Name:	
		Nixie Clock Main Board		Nixie Tube Clock	
	Sheet Title:	File Name:	Designer:	Date:	Revision:
Block Diagram	Block Diagram.kicad_sch	Aidan Brzezinski	2025-01-12	+ (Unreleased)	
Sheet Path:		Reviewer:	Size:	Sheet:	
/Block Diagram/			A3	2 of 10	

[3] Project Architecture

Description {

Clock - Oscillator & Divider

Page 4

File: Clock - Oscillator & Divider.kicad_sch

MUX Inputs - Time Logic

Page 5

File: Section B - Title B.kicad_sch

Switching MUX

Page 5

File: Switching MUX.kicad_sch

MUX Inputs - Date Logic

Page 5

File: MUX Inputs - Date Logic.kicad_sch

MUX Inputs - Anti-Poisoning Logic

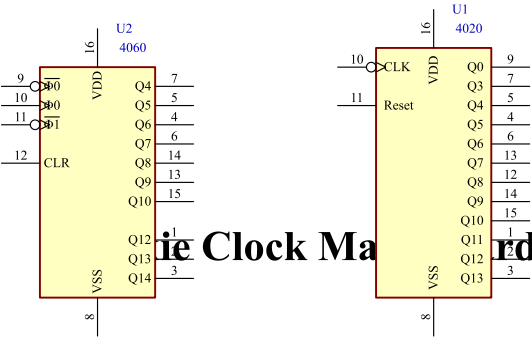
Page 5

File: MUX Inputs - Anti-Poisoning Logic.kicad_sch

Nixie Clock Main Board Project Architecture Document

	Comments:	Company:		Variant:	
		Company Name		DRAFT	
		Board Name:		Project Name:	
		Nixie Clock Main Board		Nixie Tube Clock	
	Sheet Title:	File Name:	Designer:	Date:	Revision:
Project Architecture	Project Architecture.kicad_sch	Aidan Brzezinski	2025-01-12	+ (Unreleased)	
Sheet Path:		Reviewer:	Size:	Sheet:	
/Project Architecture/			A3	3 of 10	

[4] Clock



ie Clock Main Board Clock Document

Block Description

LAYOUT NOTE:
blablabla

DESIGN NOTE:
blablabla

	Comments: AN5346 STM32G474 Datasheet p.81 J. Pieper ADC investigation	Company: Company Name		Variant: DRAFT	
		Board Name: Nixie Clock Main Board		Project Name: Nixie Tube Clock	
	Sheet Title: Clock - Oscillator & Divider	File Name: Clock - Oscillator & Divider.kicad_sch	Designer: Aidan Brzezinski	Date: 2025-01-12	Revision: + (Unreleased)
	Sheet Path: /Project Architecture/Clock - Oscillator & Divider/		Reviewer:	Size: A4	Sheet: 4 of 10

[illegible][illegible][illegible][illegible][illegible][illegible][illegible]

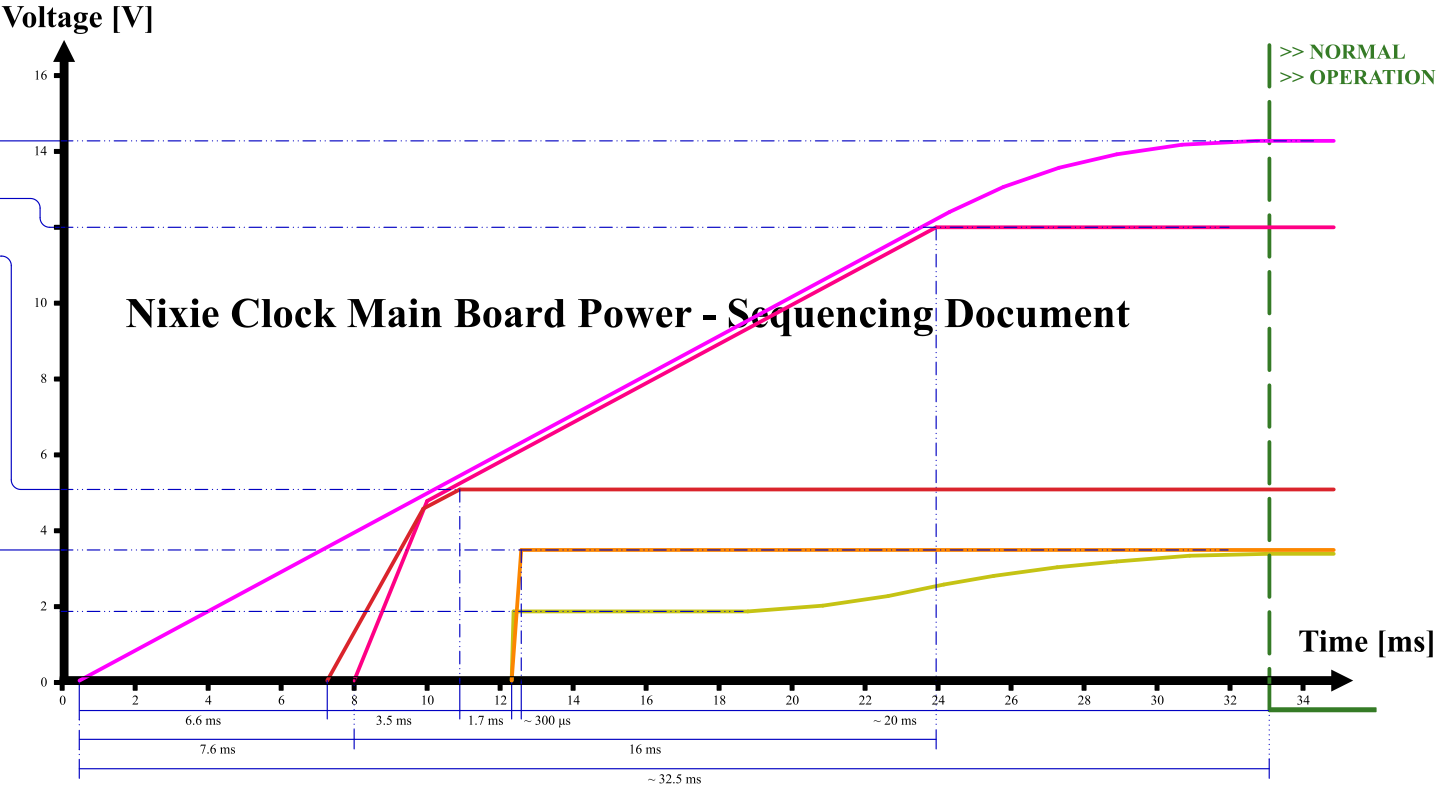
[8] Sheet Title B									
Block Description		Block Description			Block Description				
		Block Description						Block Description	
								Block Description	
		Block Description		Block Description				Block Description	
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description		Block Description			Block Description				
Block Description									

[9] Sheet Title B														
Block Description	Block Description				Nixie Clock Main Board Sheet Title B Document									
	Block Description	Block Description		Block Description										
		Block Description	Block Description	Block Description	Block Description									
	Block Description	Block Description	Block Description	Block Description		Block Description								
					Comments: References: Flexible I/O worked examples Flexible I/O source configuration		Company: Company Name		Variant: DRAFT					
					Sheet Title: Switching MUX		Board Name: Nixie Clock Main Board		Project Name: Nixie Tube Clock					
					Sheet Path: /Project Architecture/Switching MUX/		File Name: Switching MUX.kicad_sch		Designer: Aidan Brzezinski		Date: 2025-01-12		Revision: + (Unreleased)	
					Reviewer:				Size: A3		Sheet: 9 of 10			

[10] Sheet Title B											
Block Description		Block Description			Block Description						
								Block Description			
		Block Description	Block Description								
Block Description											
Block Description	Block Description		Block Description					Block Description			
Block Description		Block Description		Block Description		Block Description					
Block Description		Block Description		Block Description		Block Description					
						Comments:		Company:		Variant:	
						References:		Company Name		DRAFT	
						Flexible I/O worked examples		Board Name:		Project Name:	
						Flexible I/O source configuration					
Sheet Title:		File Name:		Designer:		Date:		Revision:			
MUX Inputs - Date Logic		MUX Inputs - Date Logic.kicad_sch		Aidan Brzezinski		2025-01-12		+ (Unreleased)			
Sheet Path:				Reviewer:		Size:		Sheet:			
/Project Architecture/MUX Inputs - Date Logic/						A3		10 of 10			

[6] Power - Sequencing

NAME	SOURCE	LEVEL
+V??	??	? - ? ± ??%
+V??	??	? - ? ± ??%
+V??	??	? - ? ± ??%
+V??	??	? - ? ± ??%
+V??	??	? - ? ± ??%



	Comments:	Company:		Variant:	
		Company Name		DRAFT	
		Board Name:		Project Name:	
		Nixie Clock Main Board		Nixie Tube Clock	
	Sheet Title:	File Name:	Designer:	Date:	Revision:
	Power - Sequencing	Power - Sequencing.kicad_sch	Aidan Brzezinski	2025-01-12	+ (Unreleased)
	Sheet Path:	Reviewer:		Size:	Sheet:
	/Power - Sequencing/			A4	6 of 10

[7] Revision History

Nixie Clock Main Board Revision History Document

	Comments:	Company:		Variant:	
		Company Name		DRAFT	
		Board Name:		Project Name:	
		Nixie Clock Main Board		Nixie Tube Clock	
	Sheet Title:	File Name:	Designer:	Date:	Revision:
	Revision History	Revision History.kicad_sch	Aidan Brzezinski	2025-01-12	+ (Unreleased)
	Sheet Path:		Reviewer:	Size:	Sheet:
	/Revision History/			A4	7 of 10