

PROJECT BUTTON HR–30 AUXILIARY POWER MODULE

Two isolated 30 W rails plus one isolated 40 W HMI rail; protection and validation open.

01 COMPUTE isolated 5 V rail

File: 01_compute_rail.kicad_sch

02 HMI isolated 5 V rail

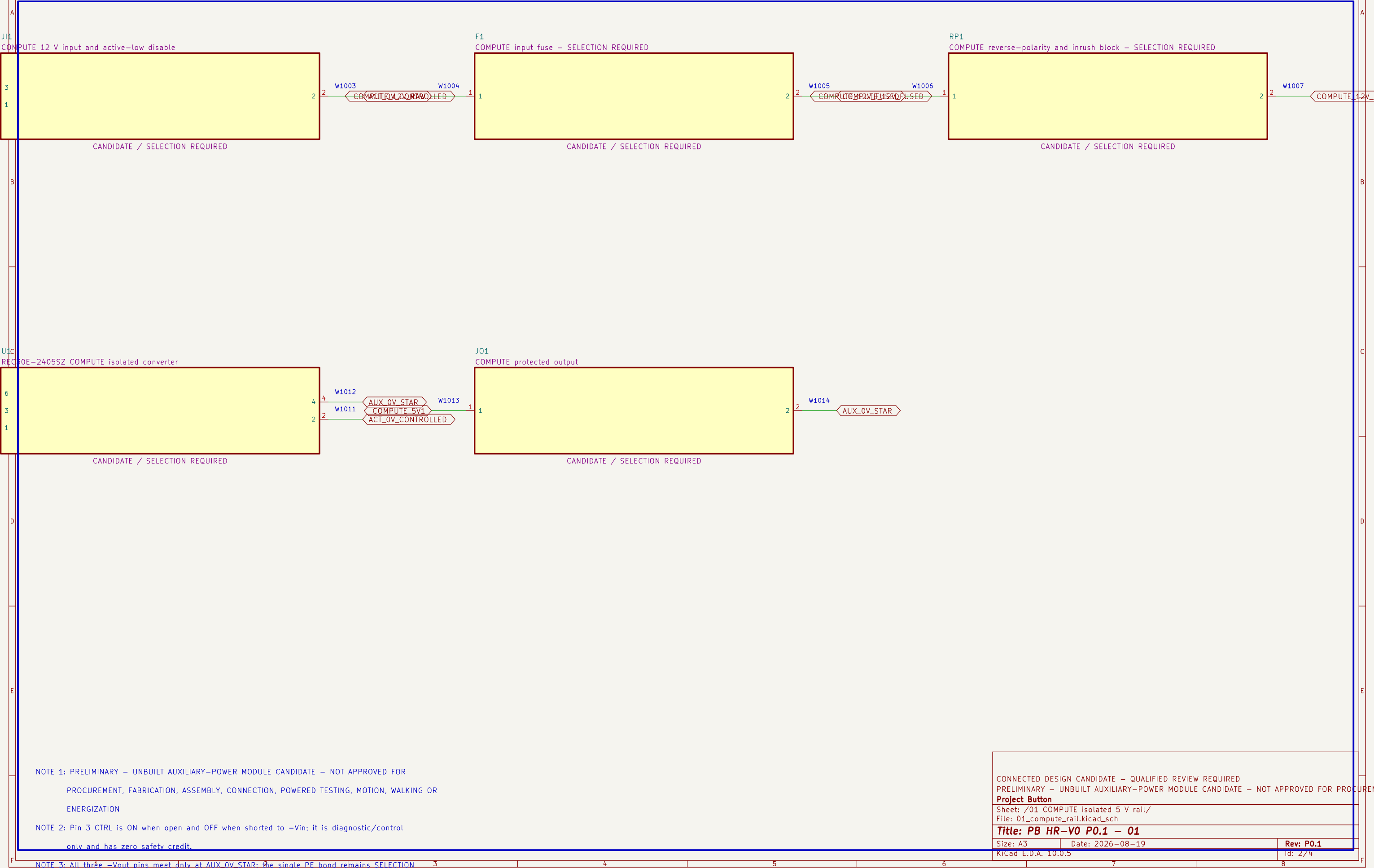
File: 02_hmi_rail.kicad_sch

03 CONTROL isolated 5 V rail

File: 03_control_rail.kicad_sch

01 COMPUTE isolated 5 V rail

Physical module and connector candidates; input protection and validation open.



NOTE 1: PRELIMINARY – UNBUILT AUXILIARY–POWER MODULE CANDIDATE – NOT APPROVED FOR PROCUREMENT, FABRICATION, ASSEMBLY, CONNECTION, POWERED TESTING, MOTION, WALKING OR ENERGIZATION

NOTE 2: Pin 3 CTRL is ON when open and OFF when shorted to –Vin; it is diagnostic/control only and has zero safety credit.

NOTE 3: All three –Vout pins meet only at AUX_OV_STAR; the single PF bond remains SELECTION REQUIRED.

CONNECTED DESIGN CANDIDATE – QUALIFIED REVIEW REQUIRED
PRELIMINARY – UNBUILT AUXILIARY–POWER MODULE CANDIDATE – NOT APPROVED FOR PROCUREMENT, FABRICATION, ASSEMBLY, CONNECTION, POWERED TESTING, MOTION, WALKING OR ENERGIZATION

Project Button

Sheet: /01 COMPUTE isolated 5 V rail/
File: 01_compute_rail.kicad_sch

Title: PB HR–V0 P0.1 – 01

Size: A3Date: 2026–08–19Rev: P0.1

KiCad E.D.A. 10.0.5Id: 2/4

03 CONTROL isolated 5 V rail

Physical module and connector candidates; input protection and validation open.

The diagram illustrates the power and control connections for a 03 CONTROL isolated 5 V rail. It features three main functional blocks, each marked as a 'CANDIDATE / SELECTION REQUIRED'.

- Top Block:** A yellow rectangular block representing the main power stage. It has a 12V input on the left, a control input (CTRL) on the top, and a protected output (J03) on the right. The output is labeled 'CONTROL protected output'.
- Bottom Block:** A yellow rectangular block representing the input protection and control logic. It has a 12V input on the left, a control input (CTRL) on the top, and a protected output (J03) on the right. The output is labeled 'CONTROL protected output'.
- Right Block:** A yellow rectangular block representing the reverse-polarity and inrush protection. It has a 12V input on the left and a control input (CTRL) on the top. The output is labeled 'CONTROL reverse-polarity and inrush block - SELECTION REQUIRED'.

Key components and connections include:

- W3003:** A green wire connecting the 12V input to the top block.
- W3004:** A green wire connecting the top block to the bottom block.
- W3005:** A green wire connecting the bottom block to the right block.
- W3006:** A green wire connecting the right block to the output.
- W3007:** A green wire connecting the output to the final 5V rail.
- W3012:** A green wire connecting the 12V input to the bottom block.
- W3011:** A green wire connecting the bottom block to the top block.
- W3013:** A green wire connecting the top block to the bottom block.
- W3014:** A green wire connecting the bottom block to the output.

Control signals and status indicators are shown in red:

- AUX_OV_STAR:** A red signal indicating auxiliary overvoltage.
- AUX_5V_SAFE:** A red signal indicating auxiliary 5V safety.
- ACT_OV_CONTROLLED:** A red signal indicating active overvoltage control.

Notes:

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Project Information:

CONNECTED DESIGN CANDIDATE – QUALIFIED REVIEW REQUIRED		
PRELIMINARY – UNBUILT AUXILIARY-POWER MODULE CANDIDATE – NOT APPROVED FOR PRODUCTION		
Project Button		
Sheet: /03 CONTROL isolated 5 V rail/ File: 03_control_rail.kicad_sch		
Title: PB HR-V0 P0.1 – 03		
Size: A3	Date: 2026-08-19	Rev: P0.1
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03 CONTROL isolated 5 V rail

Physical module and connector candidates; input protection and validation open.

The diagram illustrates the power and control connections for a 03 CONTROL isolated 5 V rail. It features three main functional blocks, each marked as a 'CANDIDATE / SELECTION REQUIRED'.

- Top Block:** Receives a 'CONTROL 12 V input and active-low disable' signal. It connects to a 'CONTROL input fuse - SELECTION REQUIRED' (F3) and a 'CONTROL reverse-polarity and inrush block - SELECTION REQUIRED' (RP3). The output of the RP3 block is connected to a 'CONTROL protected output' (J03).
- Bottom Block:** Receives a 'CONTROL 12 V input and active-low disable' signal. It connects to a 'CONTROL input fuse - SELECTION REQUIRED' (F3) and a 'CONTROL reverse-polarity and inrush block - SELECTION REQUIRED' (RP3). The output of the RP3 block is connected to a 'CONTROL protected output' (J03).
- Control Signals:** The diagram shows several control signals: 'AUX_OV_STAR', 'AUX_5V_SAFE', and 'ACT_OV_CONTROLLED'. These signals are connected to the 'CONTROL protected output' (J03) and the 'CONTROL input fuse' (F3).

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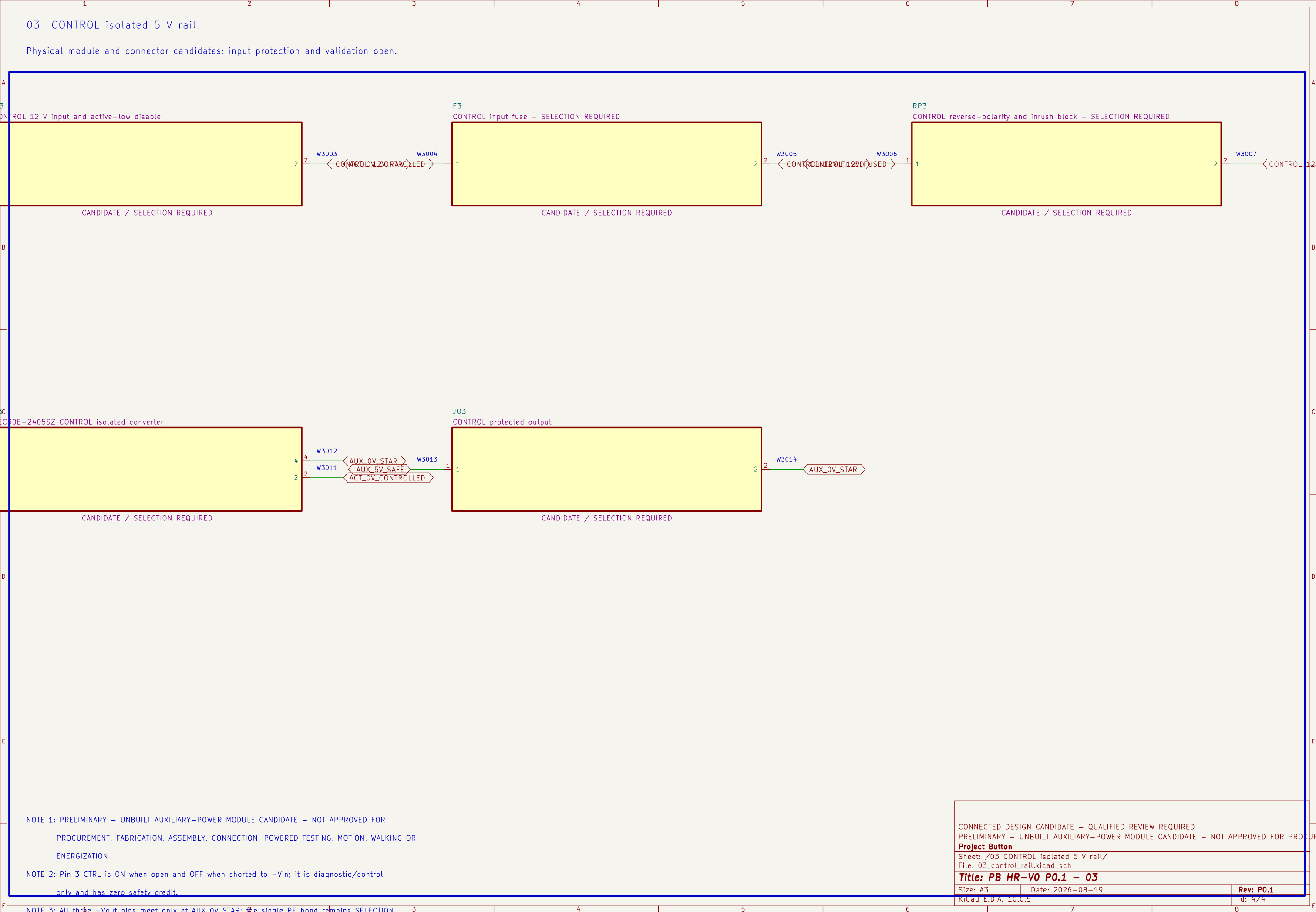
CONNECTED DESIGN CANDIDATE - QUALIFIED REVIEW REQUIRED
PRELIMINARY - UNBUILT AUXILIARY-POWER MODULE CANDIDATE - NOT APPROVED FOR PRODUCTION

Project Button

Sheet: /03 CONTROL isolated 5 V rail/
File: 03_control_rail.kicad_sch

Title: PB HR-V0 P0.1 - 03

Size: A3	Date: 2026-08-19	Rev: P0.1
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03 CONTROL isolated 5 V rail

Physical module and connector candidates; input protection and validation open.

The diagram illustrates a power management system for a 03 CONTROL isolated 5 V rail. It features three main functional blocks, each labeled as a 'CANDIDATE / SELECTION REQUIRED'.

- Block 1 (Top Left):** A yellow rectangular block representing a candidate for a 12 V input and active-low disable. It is connected to a 12 V input line (green) via a green wire labeled W3003. The output of this block is connected to a green wire labeled W3004, which leads to the input of Block 2.
- Block 2 (Top Middle):** A yellow rectangular block representing a candidate for a CONTROL input fuse (F3). It is connected to the output of Block 1 via a green wire labeled W3004. The output of Block 2 is connected to a green wire labeled W3005, which leads to the input of Block 3.
- Block 3 (Top Right):** A yellow rectangular block representing a candidate for a CONTROL reverse-polarity and inrush block (RP3). It is connected to the output of Block 2 via a green wire labeled W3005. The output of Block 3 is connected to a green wire labeled W3006, which leads to the input of Block 4.
- Block 4 (Bottom Left):** A yellow rectangular block representing a candidate for a 12 V input and active-low disable. It is connected to a 12 V input line (green) via a green wire labeled W3007. The output of this block is connected to a green wire labeled W3012, which leads to the input of Block 5.
- Block 5 (Bottom Middle):** A yellow rectangular block representing a candidate for a CONTROL protected output (J03). It is connected to the output of Block 4 via a green wire labeled W3012. The output of Block 5 is connected to a green wire labeled W3013, which leads to the input of Block 6.
- Block 6 (Bottom Right):** A yellow rectangular block representing a candidate for a CONTROL protected output (J03). It is connected to the output of Block 5 via a green wire labeled W3013. The output of Block 6 is connected to a green wire labeled W3014, which leads to the input of Block 7.
- Block 7 (Bottom Far Right):** A yellow rectangular block representing a candidate for a CONTROL protected output (J03). It is connected to the output of Block 6 via a green wire labeled W3014. The output of Block 7 is connected to a green wire labeled W3015, which leads to the input of Block 8.

Additional components and connections include:

- W3003:** A green wire connecting the 12 V input to Block 1.
- W3004:** A green wire connecting the output of Block 1 to Block 2.
- W3005:** A green wire connecting the output of Block 2 to Block 3.
- W3006:** A green wire connecting the output of Block 3 to Block 4.
- W3007:** A green wire connecting the 12 V input to Block 4.
- W3012:** A green wire connecting the output of Block 4 to Block 5.
- W3013:** A green wire connecting the output of Block 5 to Block 6.
- W3014:** A green wire connecting the output of Block 6 to Block 7.
- W3015:** A green wire connecting the output of Block 7 to Block 8.

Notes:

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Legend:

- CONNECTED DESIGN CANDIDATE – QUALIFIED REVIEW REQUIRED
- PRELIMINARY – UNBUILT AUXILIARY-POWER MODULE CANDIDATE – NOT APPROVED FOR PRODUCTION

Project Button

Sheet: /03 CONTROL isolated 5 V rail/
File: 03_control_rail.kicad_sch

Title: PB HR-V0 P0.1 – 03

Size: A3	Date: 2026-08-19	Rev: P0.1
KiCad E.D.A. 10.0.5		Id: 4/4

03 CONTROL isolated 5 V rail

Physical module and connector candidates; input protection and validation open.

CONTROL 12 V input and active-low disable

CANDIDATE / SELECTION REQUIRED

W3003

W3004

F3

CONTROL input fuse – SELECTION REQUIRED

CANDIDATE / SELECTION REQUIRED

W3005

W3006

RP3

CONTROL reverse-polarity and inrush block – SELECTION REQUIRED

CANDIDATE / SELECTION REQUIRED

W3007

CONTROL 12 V input and active-low disable

CANDIDATE / SELECTION REQUIRED

W3012

W3011

W3013

J03

CONTROL protected output

CANDIDATE / SELECTION REQUIRED

W3014

AUX_OV_STAR

CANDIDATE / SELECTION REQUIRED

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CONNECTED DESIGN CANDIDATE – QUALIFIED REVIEW REQUIRED
PRELIMINARY – UNBUILT AUXILIARY-POWER MODULE CANDIDATE – NOT APPROVED FOR PRODUCTION

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- Bottom Block:** Receives a 'CONTROL 12 V input and active-low disable' signal. It connects to a 'CONTROL input fuse - SELECTION REQUIRED' (F3) and a 'CONTROL reverse-polarity and inrush block - SELECTION REQUIRED' (RP3). The output of the RP3 block is connected to a 'CONTROL protected output' (J03).
- Control Signals:** The diagram shows several control signals: 'AUX_OV_STAR', 'AUX_5V_SAFE', and 'ACT_OV_CONTROLLED'. These signals are connected to the 'CONTROL protected output' (J03) and the 'CONTROL input fuse - SELECTION REQUIRED' (F3).

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PRELIMINARY - UNBUILT AUXILIARY-POWER MODULE CANDIDATE - NOT APPROVED FOR PRODUCTION

Project Button

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CONNECTED DESIGN CANDIDATE – QUALIFIED REVIEW REQUIRED	
PRELIMINARY – UNBUILT AUXILIARY-POWER MODULE CANDIDATE – NOT APPROVED FOR PROCUREMENT,	
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