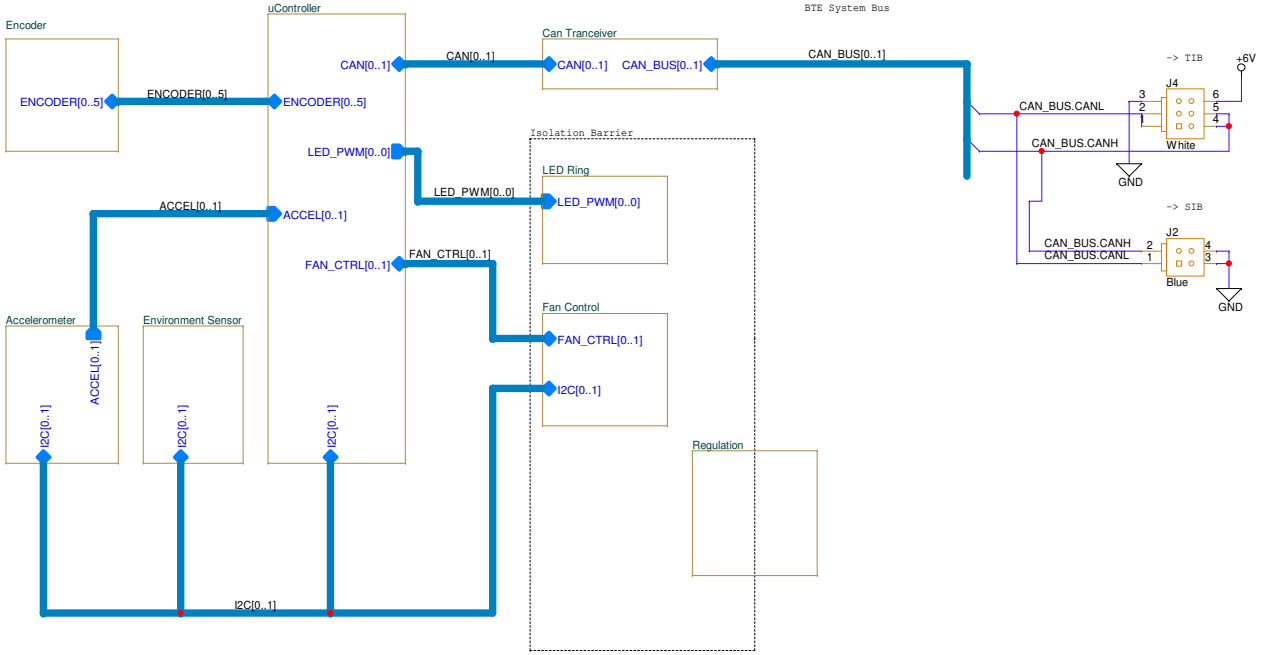
Completed:
Change SI2875 to 16-soic package
a fan stall with 4 fans on drags the 12V down. possibly separate drivers from load
  separated 12v drive and iso
Think about fans - with 4 on, the regulator gets over 175F.
encoder connector 0901301208 permanately locks,
  consider switching to IPL1-104-01-L-D-K + IPD1-04-D-K
change caps and other passives to commonize pns
change to better uC
make 12v drv reg footprint
update encoder connector footprint
need to update Si8275 symbol - on pcb? push 16-soic package change to pcb
thin out traces under accelerometer ground pins.
   I think this may be why one of the proto pcbs wasn't working

XG: Relayout and add new processor.
XH: Updated Connector Ref Des

REVISION HISTORY				
REV	DESCRIPTION	DATE	APPROVED	ECO
A	Prototype	3/27/2025	JPN	NA



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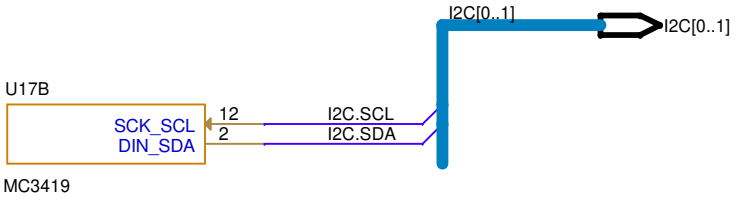
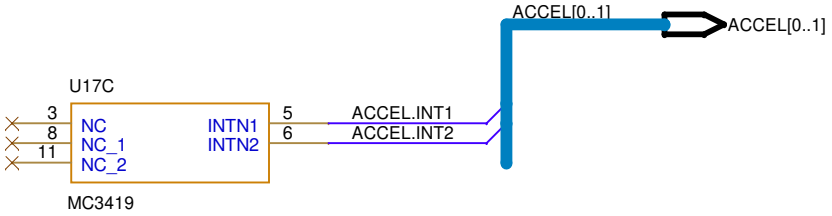
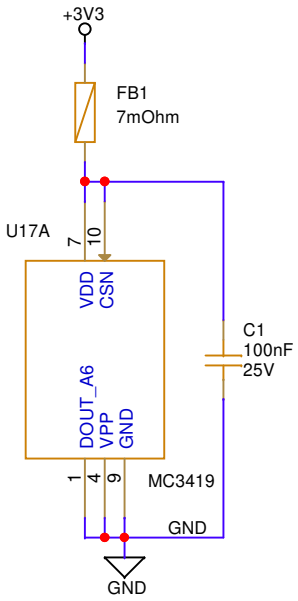
Title: Workhead Interface Board			
Size: B	Document Number: P16-2108	Page Name: Workhead Interface Board	Rev: A
Filename (.dsn): WORKHEAD INTERFACE BOARD			
Last Edited By: John Normand			
Date: Friday, October 03, 2025 12:44:01		Sheet 1 of 10	

This SCN subsystem monitors acceleration and temperature.
Acceleration will be used to determine head angle.
Temperature will be used to monitor regional temperature.

7-bit I2C address: 0x19







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Title: Workhead Interface Board			
Size: A	Document Number: P16-2109	Page Name: Accelerometer	Rev: xG
Filename (.dsn): WORKHEAD INTERFACE BOARD			
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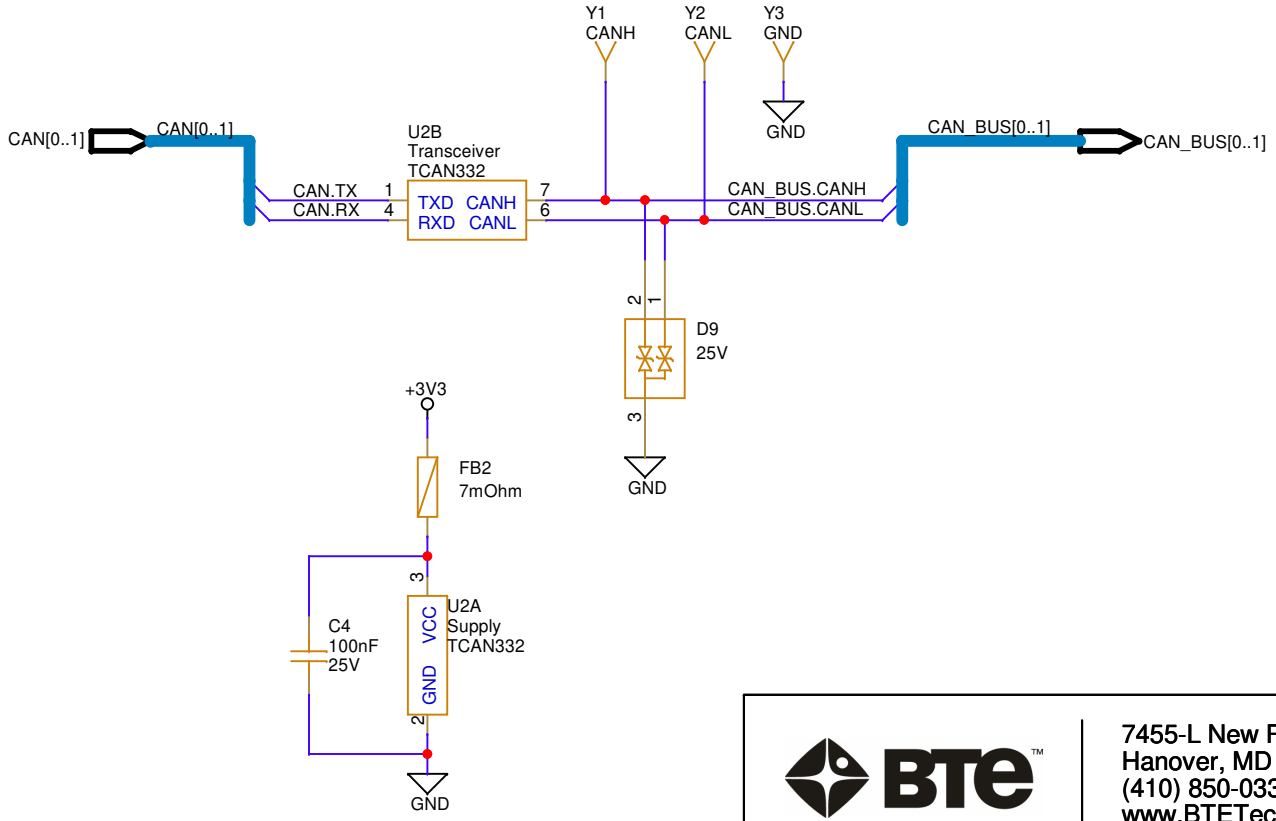
This SCN subsystem communicates with the BTE Sytem Bus.
The BTE System Bus uses CAN hardware layer.
The BTE System Bus uses CANopen for the protocol layers.
The BTE System Bus uses a producer/consumer protocol.



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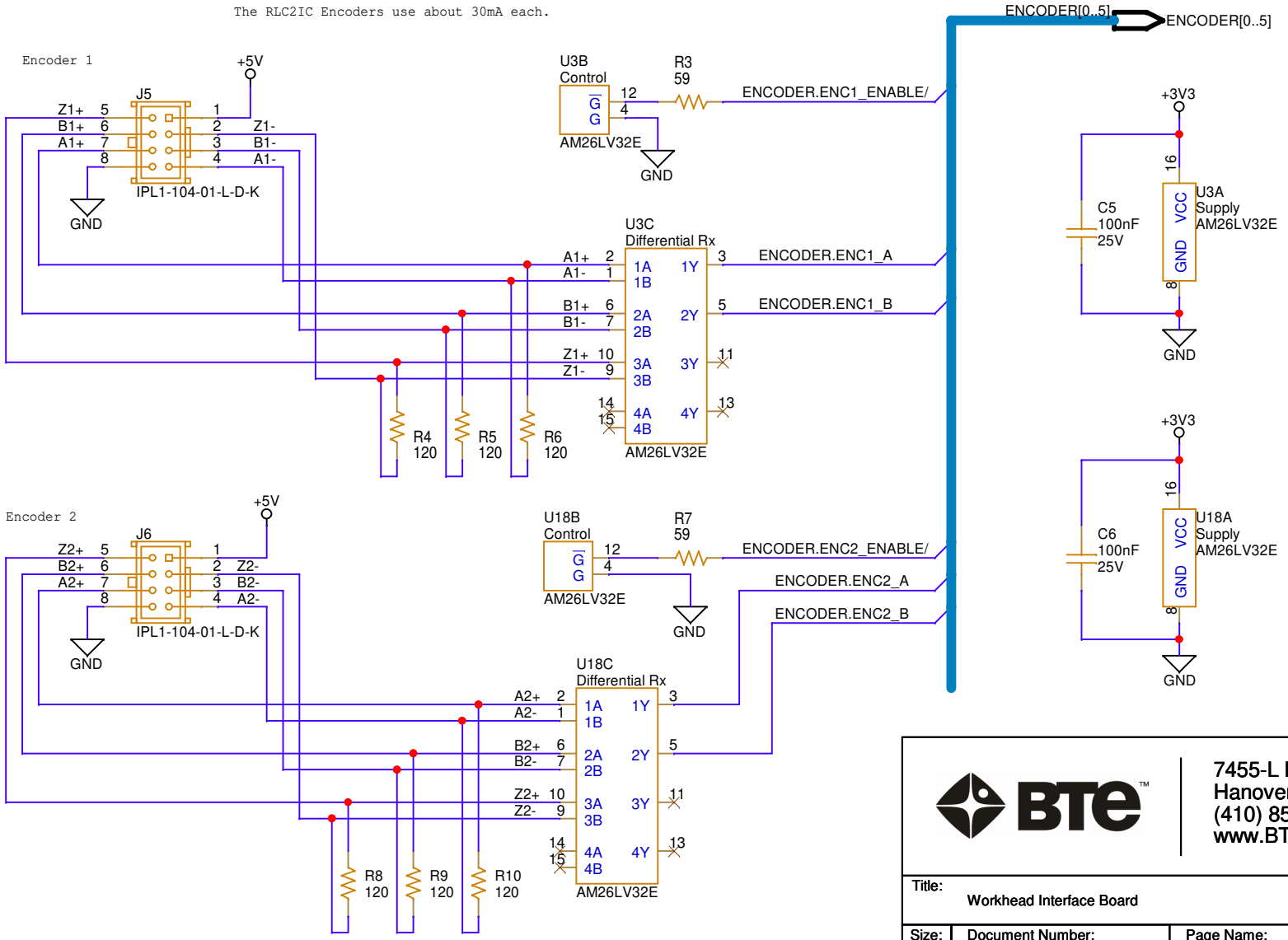
Title: Workhead Interface Board			
Size: A	Document Number: P16-2109	Page Name: CAN Transceiver	Rev: xG
Filename (.dsn): WORKHEAD INTERFACE BOARD			
Last Edited By: John Normand			
Date: Friday, October 03, 2025 12:44:01		Sheet 3 of 10	

This SCN subsystem is the angular encoder inputs.
The Encoder signals are differentially received and converted to single ended outputs.
The uC can interpret these signals and determine angular position of the shaft.

The RLC2IC Encoders use about 30mA each.



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Title: Workhead Interface Board			
Size: A	Document Number: P16-2109	Page Name: Encoder	Rev: xG
Filename (.dsn): WORKHEAD INTERFACE BOARD			
Last Edited By: John Normand			
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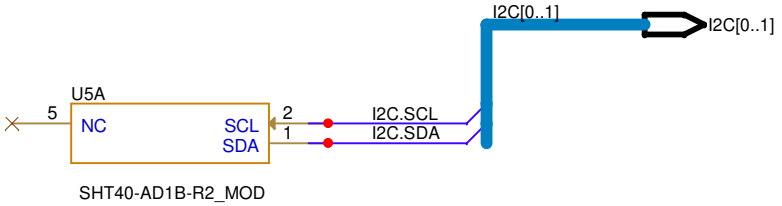
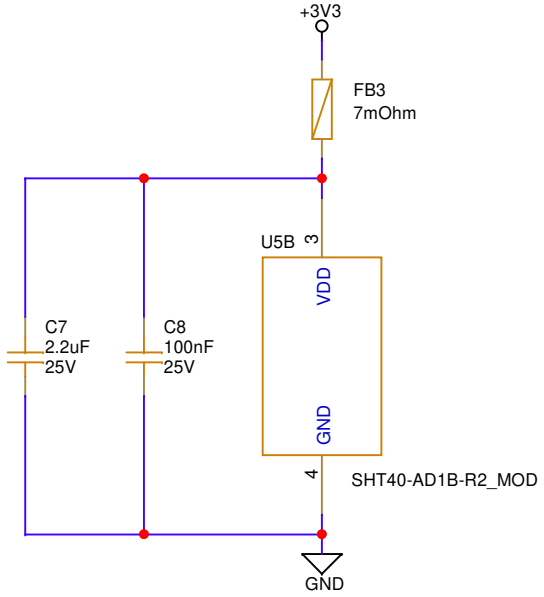
This SCN subsystem monitors moisture and temperature.
Moisture will be used to monitor system health.
Temperature will be used to monitor regional temperature.

7-bit I2C address: 0x44





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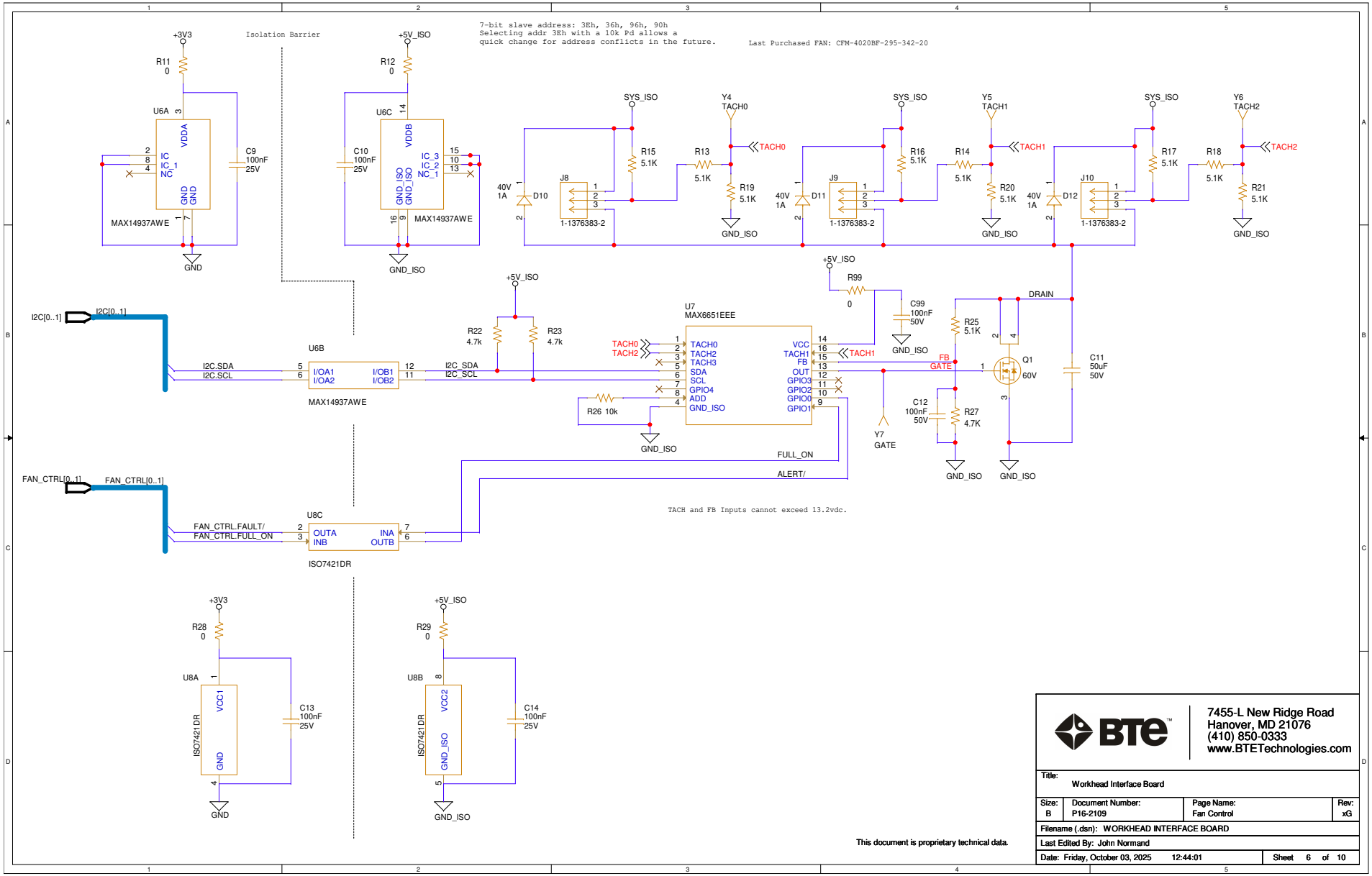
Title: Workhead Interface Board			
Size: A	Document Number: P16-2109	Page Name: Environment Sensor	Rev: xG
Filename (.dsn): WORKHEAD INTERFACE BOARD			
Last Edited By: John Normand			
Date: Friday, October 03, 2025 12:44:01		Sheet 5 of 10	


7-bit slave address: 3Eh, 36h, 96h, 90h
Selecting addr 3Eh with a 10k Pd allows a
quick change for address conflicts in the future.
Last Purchased FAN: CFM-4020BF-295-342-20
Isolation Barrier
+3V3
+5V_ISO
R11 0
R12 0
U6A
U6C
MAX14937AWE
C9 100nF 25V
C10 100nF 25V
GND
GND_ISO
SYS_ISO
Y4 TACH0
Y5 TACH1
Y6 TACH2
R15 5.1K
R16 5.1K
R17 5.1K
R13 5.1K
R14 5.1K
R18 5.1K
R19 5.1K
R20 5.1K
R21 5.1K
D10
D11
D12
40V 1A
J8
J9
J10
1-1376383-2
I2C[0..1]
I2C.SDA
I2C.SCL
I2C_SDA
I2C_SCL
R22 4.7k
R23 4.7k
U6B
MAX14937AWE
U7
MAX6651EEE
R99 0
C99 100nF 50V
R25 5.1K
R26 10k
R27 4.7K
C12 100nF 50V
Q1
60V
DRAIN
FB
GATE
C11 50uF 50V
Y7 GATE
FULL_ON
ALERT/
FAN_CTRL[0..1]
FAN_CTRL.FAULT/
FAN_CTRL.FULL_ON
U8C
ISO7421DR
U8A
U8B
R28 0
R29 0
C13 100nF 25V
C14 100nF 25V
TACH and FB Inputs cannot exceed 13.2vdc.
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Title: Workhead Interface Board
Size: B
Document Number: P16-2109
Page Name: Fan Control
Rev: xG
Filename (.dsn): WORKHEAD INTERFACE BOARD
Last Edited By: John Normand
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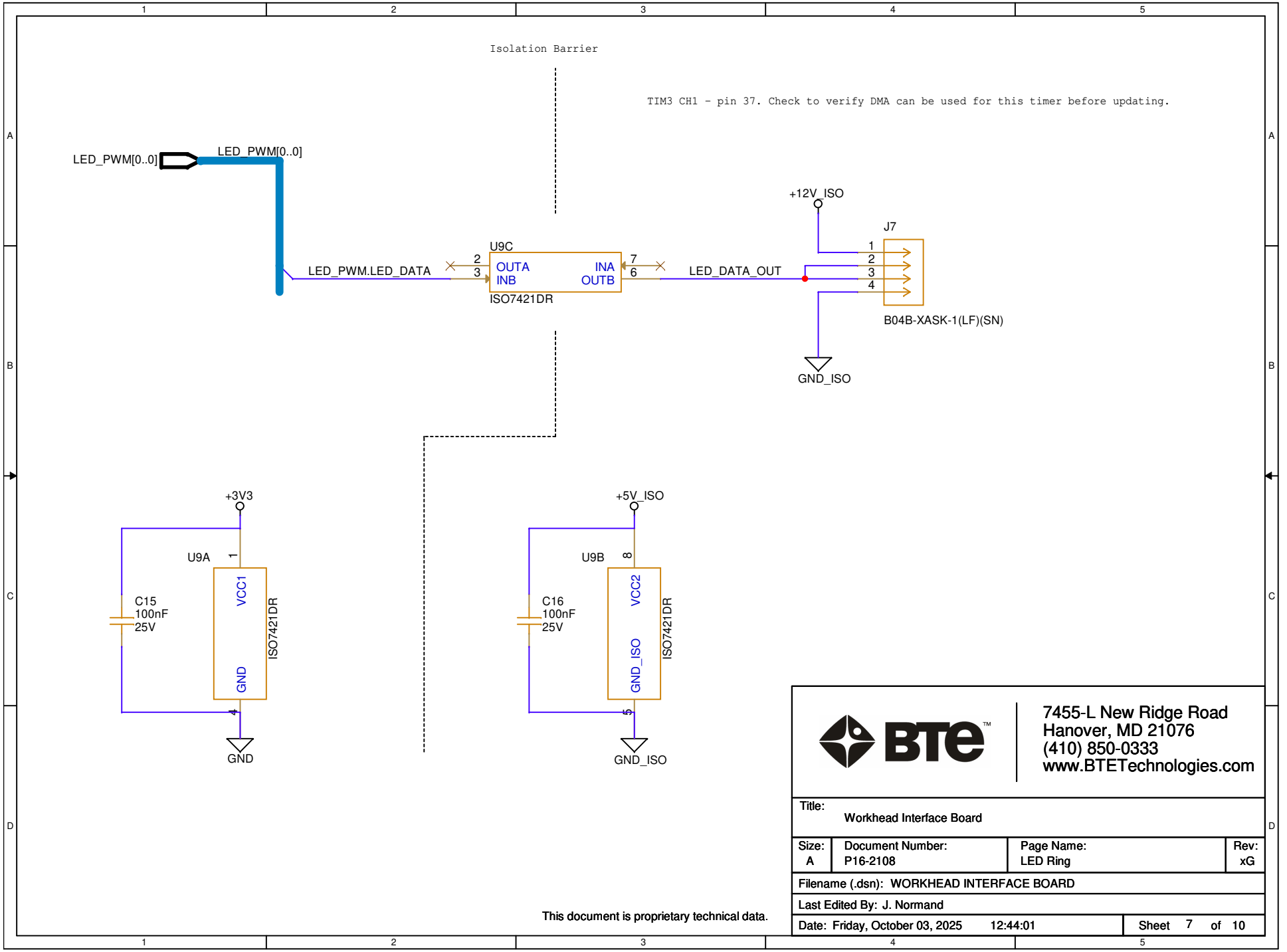
Sheet 6 of 10


Isolation Barrier
TIM3 CH1 - pin 37. Check to verify DMA can be used for this timer before updating.
LED_PWM[0..0]
LED_PWM[0..0]
LED_PWM.LED_DATA
U9C
OUTA
INB
INA
OUTB
ISO7421DR
LED_DATA_OUT
+12V_ISO
J7
B04B-XASK-1(LF)(SN)
GND_ISO
+3V3
U9A
VCC1
GND
ISO7421DR
C15
100nF
25V
GND
+5V_ISO
U9B
VCC2
GND_ISO
ISO7421DR
C16
100nF
25V
GND_ISO
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Title:
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Size:
A
Document Number:
P16-2108
Page Name:
LED Ring
Rev:
xG
Filename (.dsn): WORKHEAD INTERFACE BOARD
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Sheet 7 of 10
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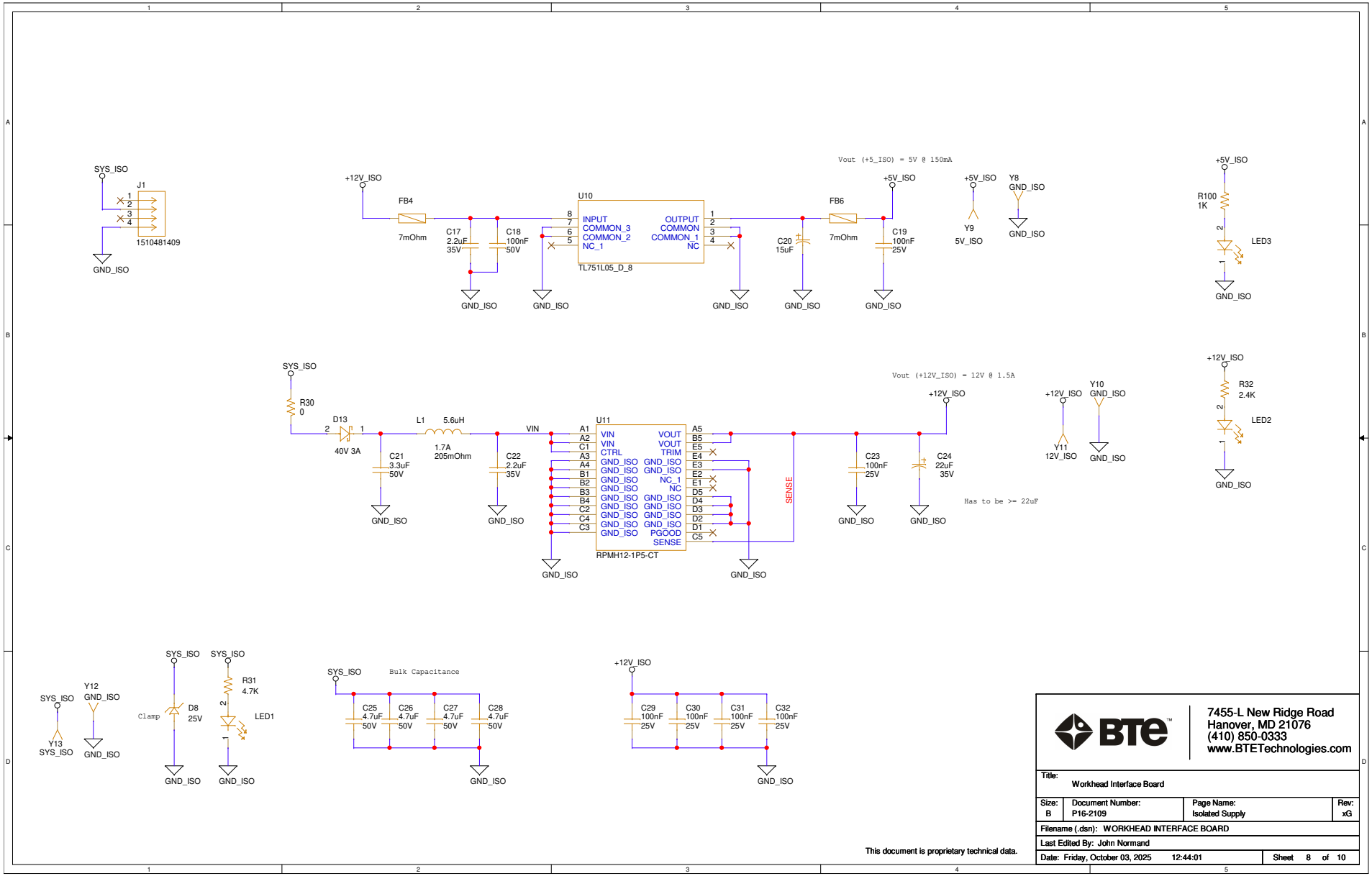

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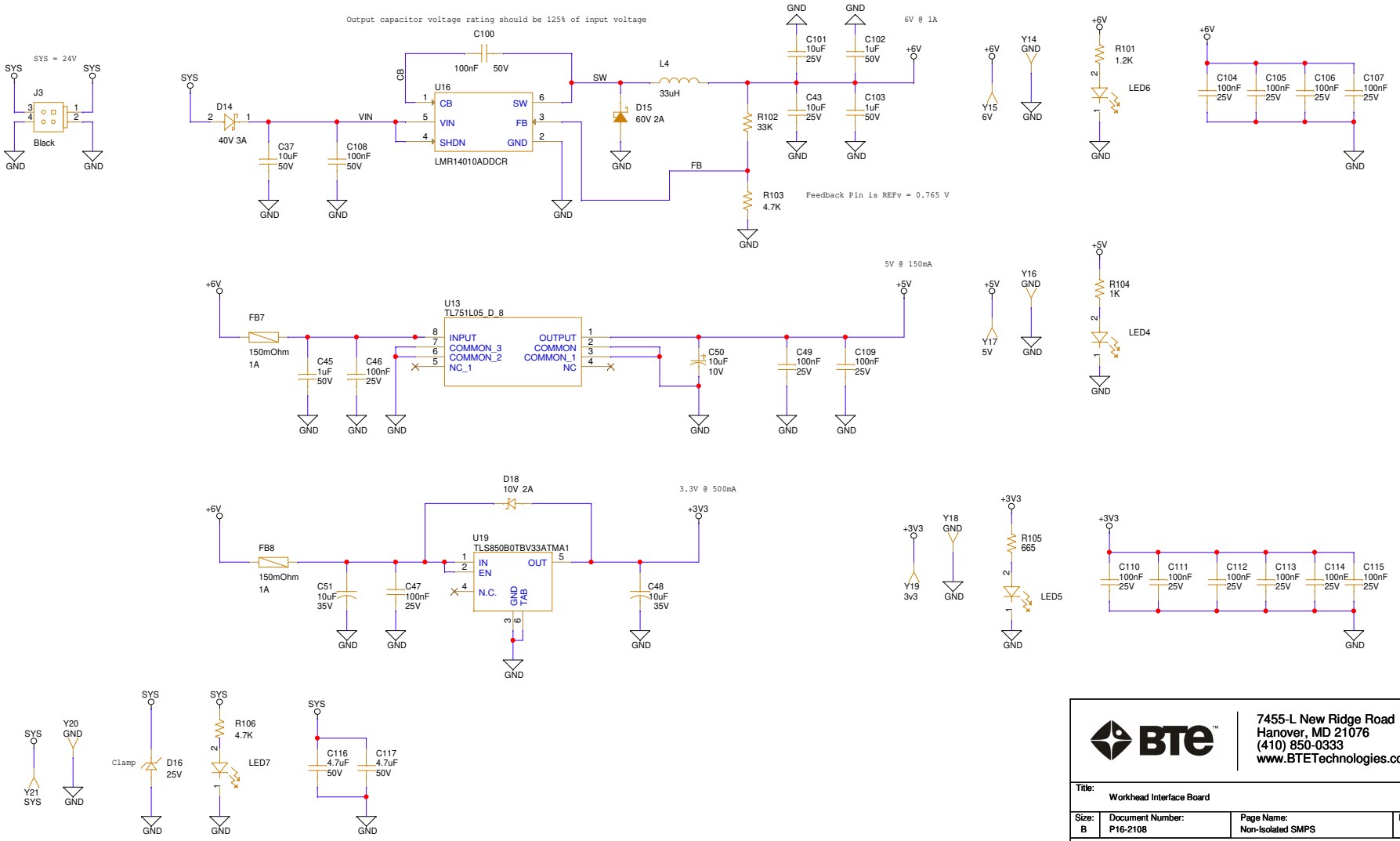
Size: B	Document Number: P16-2109	Page Name: Isolated Supply	Rev: xG
Filename (.dsn): WORKHEAD INTERFACE BOARD			
Last Edited By: John Normand			
Date: Friday, October 03, 2025 12:44:01		Sheet 8 of 10	



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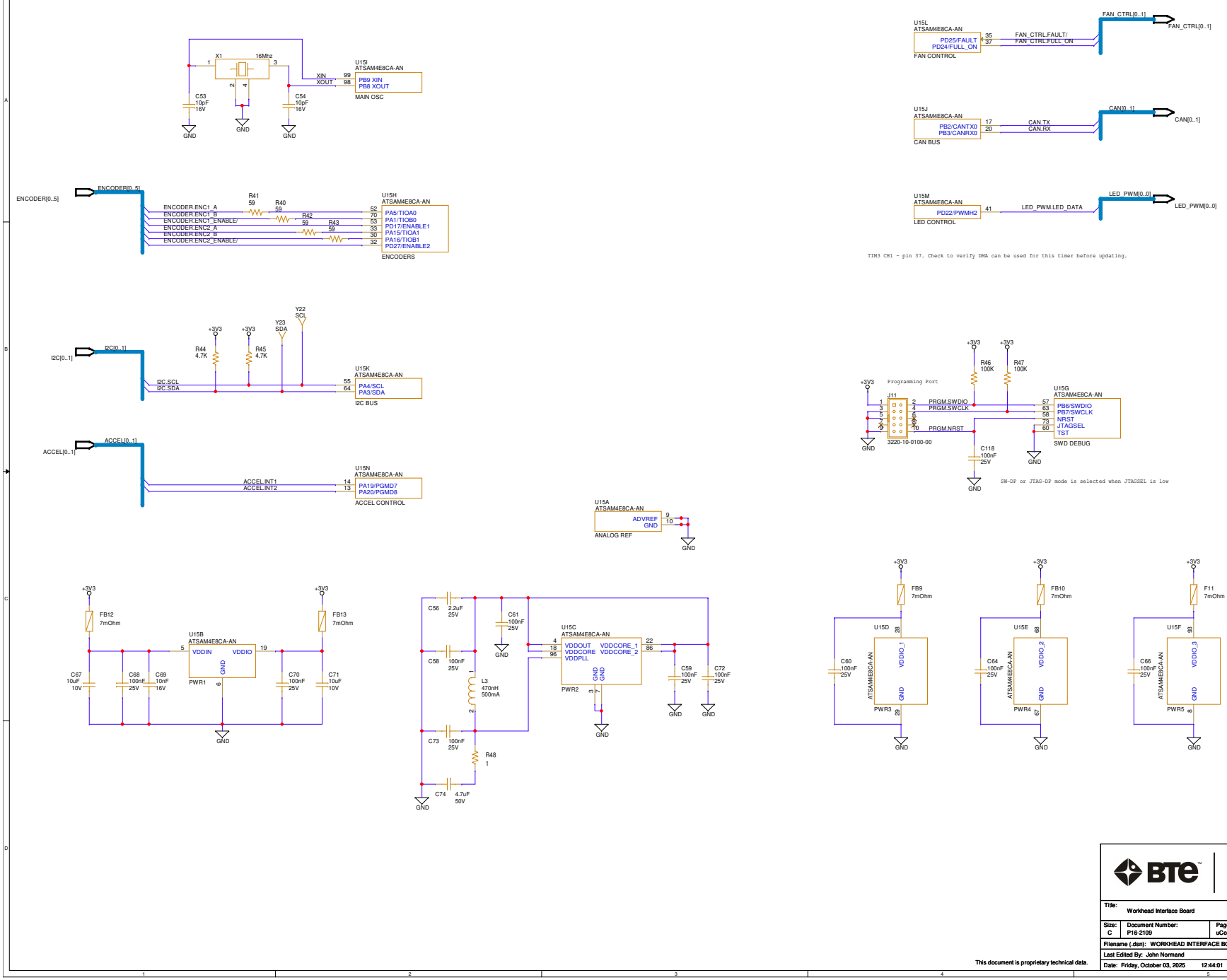
Title: Workhead Interface Board			
Size: B	Document Number: P16-2108	Page Name: Non-Isolated SMPS	Rev: xG
Filename (.dsn): WORKHEAD INTERFACE BOARD			
Last Edited By: John Normand			
Date: Friday, October 03, 2025 12:44:01		Sheet 9 of 10	



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Title: Workhead Interface Board			
Size: C	Document Number: P16-2109	Page Name: uController	Rev: xG
Filename (.dsn): WORKHEAD INTERFACE BOARD			
Last Edited By: John Normand			
Date: Friday, October 03, 2025 12:44:01		Sheet 10 of 10	