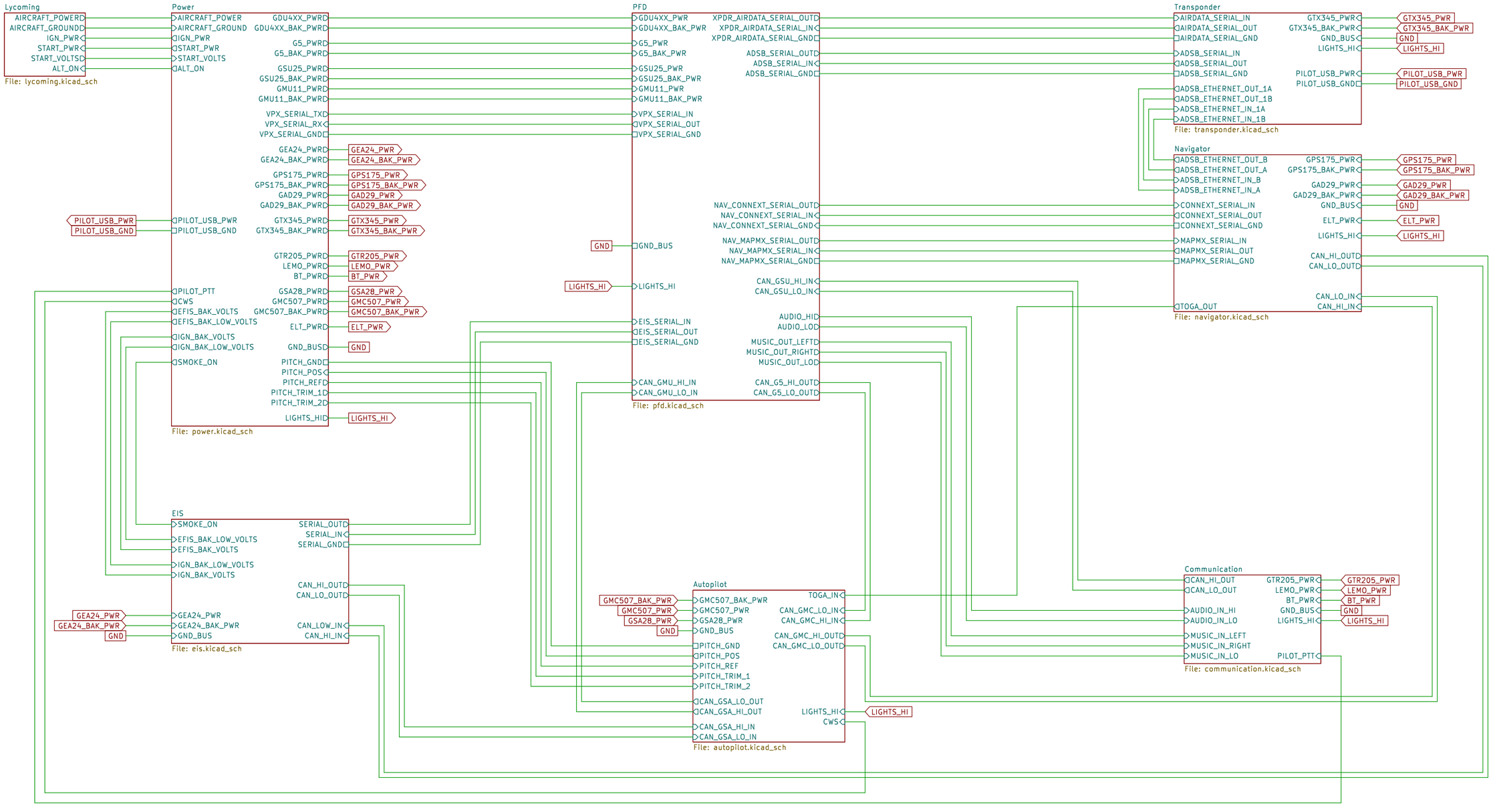
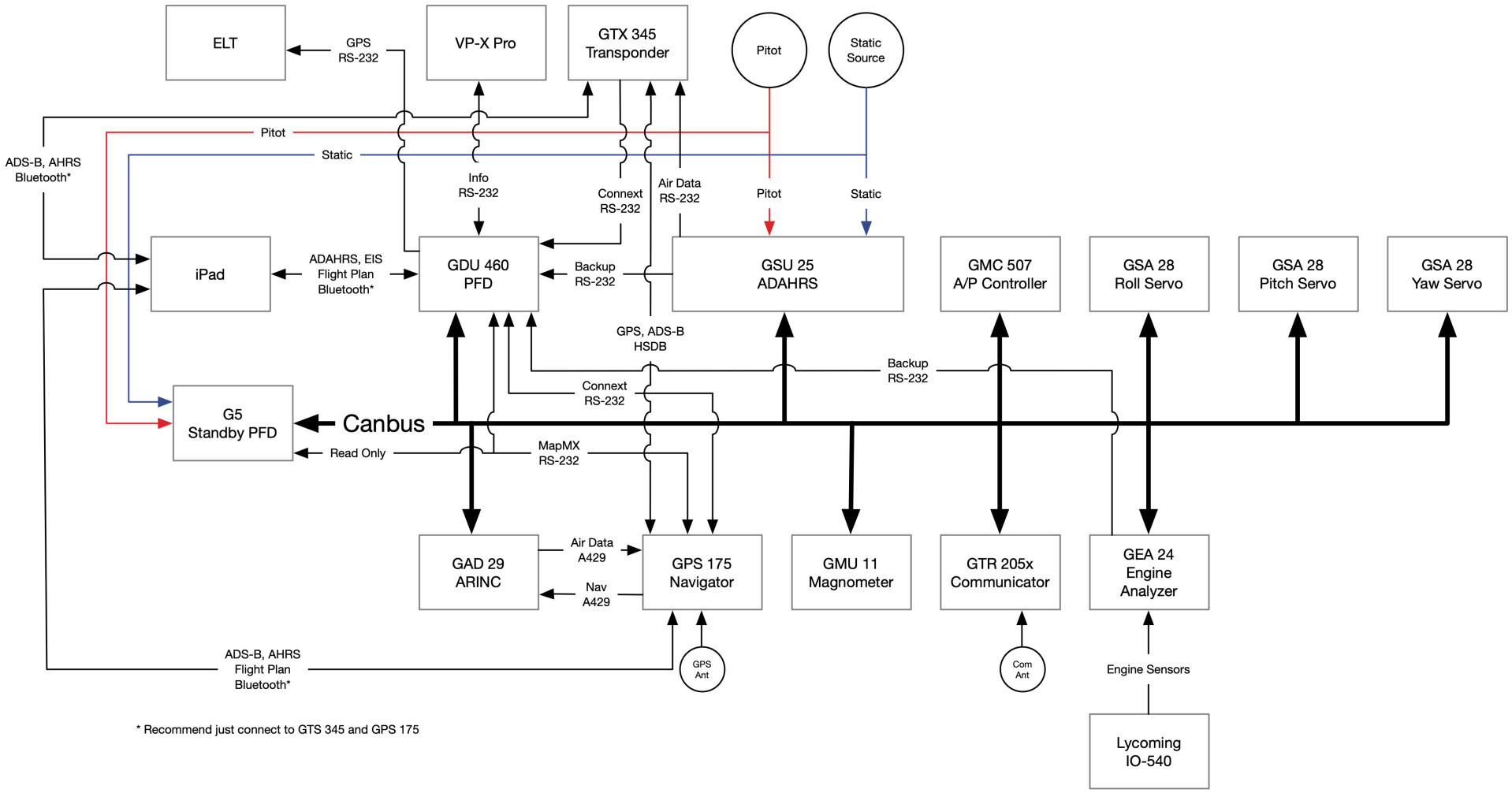

Lycoming
AIRCRAFT_POWERD
AIRCRAFT_GROUNDD
IGN_PWR
START_PWR
START_VOLTS
ALT_ON
File: lycoming.kicad_sch
Power
AIRCRAFT_POWER
AIRCRAFT_GROUND
IGN_PWR
START_PWR
START_VOLTS
ALT_ON
GDU4XX_PWRD
GDU4XX_BAK_PWRD
G5_PWRD
G5_BAK_PWRD
GSU25_PWRD
GSU25_BAK_PWRD
GMU11_PWRD
GMU11_BAK_PWRD
VPX_SERIAL_TX
VPX_SERIAL_RX
VPX_SERIAL_GND
GEA24_PWRD
GEA24_BAK_PWRD
GPS175_PWRD
GPS175_BAK_PWRD
GAD29_PWRD
GAD29_BAK_PWRD
GTX345_PWRD
GTX345_BAK_PWRD
GTR205_PWR
LEMO_PWR
BT_PWR
GSA28_PWR
GMC507_PWR
GMC507_BAK_PWRD
ELT_PWRD
GND_BUSD
PITCH_GND
PITCH_POS
PITCH_REFD
PITCH_TRIM_1D
PITCH_TRIM_2D
LIGHTS_HID
PILOT_USB_PWR
PILOT_USB_GND
PILOT_PTT
CWS
EFIS_BAK_VOLTS
EFIS_BAK_LOW_VOLTS
IGN_BAK_VOLTS
IGN_BAK_LOW_VOLTS
SMOKE_ON
File: power.kicad_sch
PFD
GDU4XX_PWR
GDU4XX_BAK_PWR
G5_PWR
G5_BAK_PWR
GSU25_PWR
GSU25_BAK_PWR
GMU11_PWR
GMU11_BAK_PWR
VPX_SERIAL_IN
VPX_SERIAL_OUT
VPX_SERIAL_GND
GND_BUS
LIGHTS_HI
EIS_SERIAL_IN
EIS_SERIAL_OUT
EIS_SERIAL_GND
CAN_GMU_HI_IN
CAN_GMU_LO_IN
XPDR_AIRDATA_SERIAL_OUT
XPDR_AIRDATA_SERIAL_IN
XPDR_AIRDATA_SERIAL_GND
ADSB_SERIAL_OUT
ADSB_SERIAL_IN
ADSB_SERIAL_GND
NAV_CONNEXT_SERIAL_OUT
NAV_CONNEXT_SERIAL_IN
NAV_CONNEXT_SERIAL_GND
NAV_MAPMX_SERIAL_OUT
NAV_MAPMX_SERIAL_IN
NAV_MAPMX_SERIAL_GND
CAN_GSU_HI_IN
CAN_GSU_LO_IN
AUDIO_HID
AUDIO_LOD
MUSIC_OUT_LEFTD
MUSIC_OUT_RIGHTD
MUSIC_OUT_LOD
CAN_G5_HI_OUTD
CAN_G5_LO_OUTD
File: pfd.kicad_sch
Transponder
AIRDATA_SERIAL_IN
AIRDATA_SERIAL_OUT
AIRDATA_SERIAL_GND
ADSB_SERIAL_IN
ADSB_SERIAL_OUT
ADSB_SERIAL_GND
ADSB_ETHERNET_OUT_1A
ADSB_ETHERNET_OUT_1B
ADSB_ETHERNET_IN_1A
ADSB_ETHERNET_IN_1B
GTX345_PWR
GTX345_BAK_PWR
GND_BUS
LIGHTS_HI
PILOT_USB_PWR
PILOT_USB_GND
File: transponder.kicad_sch
Navigator
ADSB_ETHERNET_OUT_B
ADSB_ETHERNET_OUT_A
ADSB_ETHERNET_IN_B
ADSB_ETHERNET_IN_A
CONNEXT_SERIAL_IN
CONNEXT_SERIAL_OUT
CONNEXT_SERIAL_GND
MAPMX_SERIAL_IN
MAPMX_SERIAL_OUT
MAPMX_SERIAL_GND
TOGA_OUT
GPS175_PWR
GPS175_BAK_PWR
GAD29_PWR
GAD29_BAK_PWR
GND_BUS
ELT_PWR
LIGHTS_HI
CAN_HI_OUT
CAN_LO_OUT
CAN_LO_IN
CAN_HI_IN
File: navigator.kicad_sch
EIS
SMOKE_ON
EFIS_BAK_LOW_VOLTS
EFIS_BAK_VOLTS
IGN_BAK_LOW_VOLTS
IGN_BAK_VOLTS
GEA24_PWR
GEA24_BAK_PWR
GND_BUS
SERIAL_OUT
SERIAL_IN
SERIAL_GND
CAN_HI_OUT
CAN_LO_OUT
CAN_LOW_IN
CAN_HI_IN
File: eis.kicad_sch
Autopilot
GMC507_BAK_PWR
GMC507_PWR
GSA28_PWR
GND_BUS
PITCH_GND
PITCH_POS
PITCH_REF
PITCH_TRIM_1
PITCH_TRIM_2
CAN_GSA_LO_OUT
CAN_GSA_HI_OUT
CAN_GSA_HI_IN
CAN_GSA_LO_IN
TOGA_IN
CAN_GMC_LO_IN
CAN_GMC_HI_IN
CAN_GMC_HI_OUT
CAN_GMC_LO_OUT
LIGHTS_HI
CWS
File: autopilot.kicad_sch
Communication
CAN_HI_OUT
CAN_LO_OUT
AUDIO_IN_HI
AUDIO_IN_LO
MUSIC_IN_LEFT
MUSIC_IN_RIGHT
MUSIC_IN_LO
PILOT_PTT
GTR205_PWR
LEMO_PWR
BT_PWR
GND_BUS
LIGHTS_HI
File: communication.kicad_sch
Overview
File: overview.kicad_sch
Canbus Order
GTR205x
GSU25
GDU460
G5
GMC507
GAD29
GEA24
GSA28 Roll
GSA28 Pitch
GSA28 Yaw
GMU11
Connectors Needed
DT4 x1
DT6 x3
DTM3 x1
DTM4 x3
DTM6 x2
DTM8 x5
DTP4 x1
RS232 Colors "Source Side"
Transmit: White/Blue
Receive: White/Orange
Ground: White
Canbus Colors
Lo: White
Hi: Blue
N78HR
Sheet: /
File: electrical.kicad_sch
Title: Electrical Overview
Size: B
Date: 2025-11-19
Rev: 1.2.8
KiCad E.D.A. 9.0.6
Id: 2/10



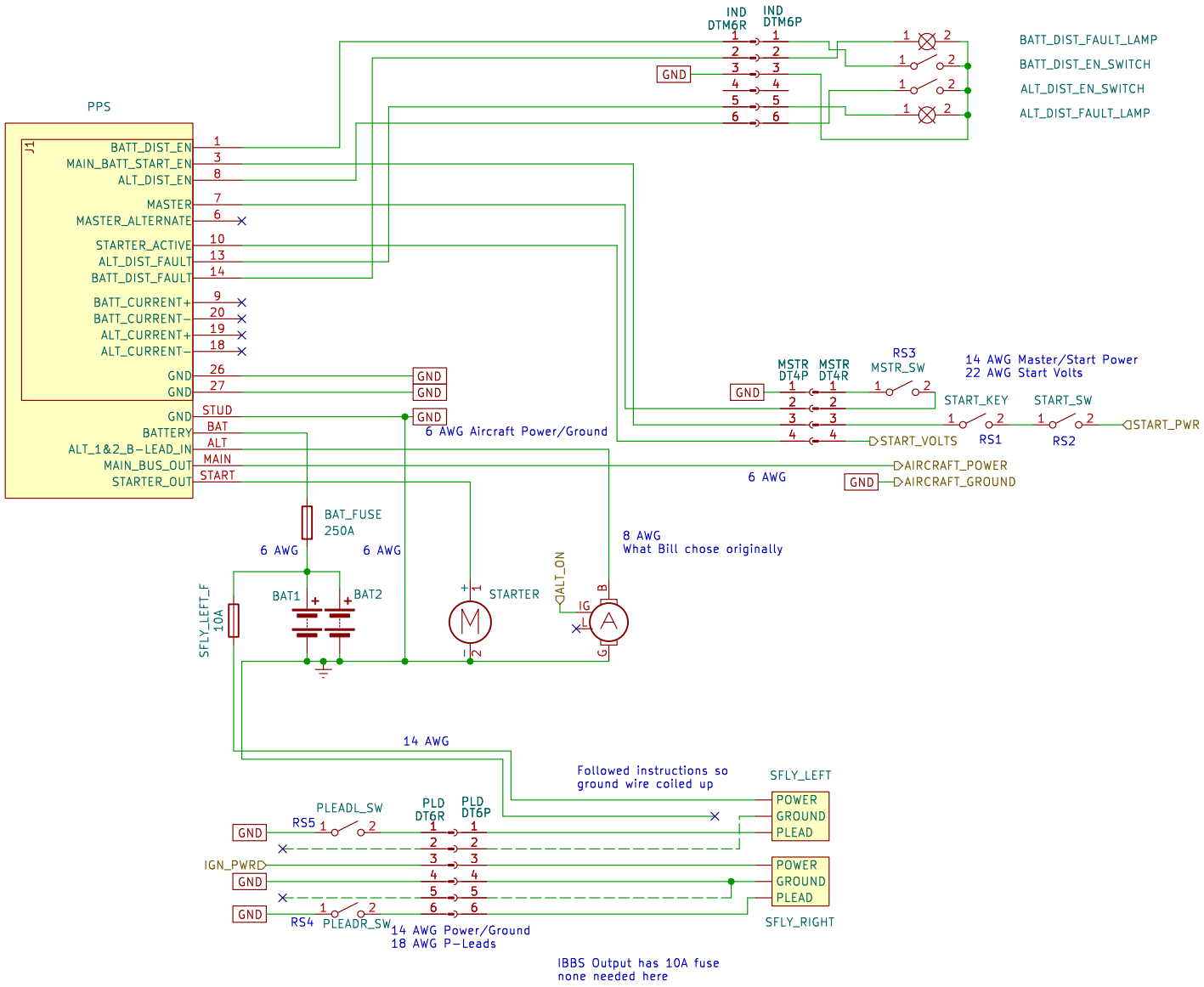
* Recommend just connect to GTS 345 and GPS 175

N78HR

Sheet: /Overview/
File: overview.kicad_sch

Title: System Overview

Size: USLetter	Date: 2025-11-29	**Rev: 1.2.9**
KiCad E.D.A. 9.0.6		Id: 1/10



N78HR

Sheet: /Lycoming/
File: lycoming.kicad_sch

Title: Lycoming

Size: A	Date: 2025−12−20	**Rev: 1.2.11**
KiCad E.D.A. 9.0.6		Id: 3/10

J1, J2, J8 are by IBBS
J10, J12 are by AV stack

VPX

J1
2A-1 J1_1 PANEL_PWR
2A-2 J1_2 PANEL_LIGHTS_PWR
ROLL_TRIM_REF J1_3 ROLL_REF
ROLL_TRIM_GND J1_4 ROLL_GND
ROLL_TRIM_POS J1_5 ROLL_POS
ROLL_TRIM J1_6 ROLL_TRIM_1
ROLL_TRIM J1_7 ROLL_TRIM_2
VPX Manual to Ray Allen
PITCH_TRIM_REF J1_8 White/Blue PITCH_REF Blue
PITCH_TRIM_GND J1_9 White/Orange PITCH_GND Orange
PITCH_TRIM_POS J1_10 White PITCH_POS Green
PITCH_TRIM_MOTOR J1_11 White PITCH_TRIM_1 White
PITCH_TRIM_MOTOR J1_12 White/Blue PITCH_TRIM_2 Gray
FLAP_POS J1_17 White FLAPS_POS Green
FLAP_GND J1_18 White/Blue FLAPS_GND Blue
FLAP_REF J1_19 White/Orange FLAPS_REF Orange
SERIAL_TX J1_20 VPX_SERIAL_TX
SERIAL_RX J1_22 VPX_SERIAL_RX
SERIAL_GND J1_21 VPX_SERIAL_GND
Destination Open Shield

J2
S1 J2_1
S2 J2_2 FUEL_SW RS6
S3 J2_3 LANDING_SW LS5
S4 J2_4 TAXI_SW LS4
S5 J2_5 POSITION_SW LS3
S6 J2_6 STROBE_SW LS6
S7 J2_7 CABIN_SW LS2
S8 J2_8 SMOKE_SW LS8
S9 J2_9 12V_SW LS7
S10 J2_10 Pitot Heat (Reserved)
STARTER_ANNUN_INPUT J2_11 START_VOLTS
AUX_BATT_VOLTAGE_INPUT J2_12
FLAP_UP_SWITCH J2_14 FLAPS_UP
FLAP_DN_SWITCH J2_15 FLAPS_DOWN
ROLL_TRIM_LT_INPUT J2_16
ROLL_TRIM_RT_INPUT J2_17
PITCH_TRIM_UP_INPUT J2_18 TRIM_UP
PITCH_TRIM_DN_INPUT J2_19 TRIM_DOWN

(PRO ONLY) J8
10A 10A-1 J8_2 IGN_PWR 14 AWG
5A 5A-1 J8_1 IGN_BAK_PWR
2A 5A-2 J8_3 GSU25_PWR
5A 5A-3 J8_4 G5_PWR
2A 5A-4 J8_5 GMU11_PWR 18 AWG
5A 5A-5 J8_6 EFIS_BAK_PWR
5A 5A-6 J8_7 GAD29_PWR
1A 5A-7 J8_8 GMC507_PWR

J10
STARTER_(10A) J10_1 START_PWR 14 AWG
13A 15A-1 J10_6 STROBE_PWR 16 AWG
5A 10A-2 J10_3 LEFT_LIGHT_PWR 16 AWG
5A 10A-3 J10_5 RIGHT_LIGHT_PWR 16 AWG
3A 5A-8 J10_2 POSITION_PWR 16 AWG
3A 5A-9 J10_4 SMOKE_PWR 16 AWG
2A 5A-10 J10_7 CABIN_PWR
5A 5A-11 J10_8 GPS175_PWR
2A 5A-12 J10_10 GTX345_PWR
GROUND J10_9 GND

J12
GROUND J12_4 GND
15A 15A-2 J12_2 12V_PWR 14 AWG
15A-3 J12_12 Pitot Heat (Reserved)
10A 10A-4 J12_1 GTR205_PWR 18 AWG
10A 10A-5 J12_3 GSA28_PWR 16 AWG
6A 10A-6 J12_7 FUEL_PWR 16 AWG
2A 5A-13 J12_8 GEA24_PWR
2A 3A-1 J12_10 LEMO_PWR / ELT_PWR / CAMERA_PWR
5A EFIS J12_9 GDU4XX_PWR
FIELD_PRIMARY J12_11 ALT_ON 16 AWG
GND For grounding block on cabin side of firewall
ALTR DT2 ALTP DT2
FLAP_(10A) J12_5 FLAPS_1 16 AWG
FLAP_(10A) J12_6 FLAPS_2 16 AWG
POWER PWR AIRCRAFT_POWER 6 AWG
GROUND GND GND

IBBS-EFIS
EFIS_BAK_PWR 5 POWER_IN
GND 9 GROUND
10 GROUND
11 GROUND
RS9 EFIS_BAK_SW
GND 2 1 1 ENABLE_BACKUP_SWITCH
Page 24-7
EFIS_BAK_VOLTS 2 BATTERY_INFO
EFIS_BAK_LOW_VOLTS 3 LOW_VOLT_WARNING
Individual: 3.5A Continuous 5A: Peak
6 PASSTHROUGH_POWER_IN
7 PASSTHROUGH_POWER_IN
8 PASSTHROUGH_POWER_IN
Total: 5A Max Continuous 10A Max Peak
16 AWG
12 POWER_OUT
13 POWER_OUT
14 POWER_OUT
15 POWER_OUT
GDU4XX_BAK_PWR
GEA24_BAK_PWR
GSU25_BAK_PWR
GMU11_BAK_PWR 18 AWG
Backup
16 AWG
AVIONICS_SW
RS7 GND
GPS175_BAK_PWR
GAD29_BAK_PWR
GTX345_BAK_PWR
GMC507_BAK_PWR
Avionics Backup

IBBS-IGN
IGN_BAK_PWR 5 POWER_IN
GND 9 GROUND
10 GROUND
11 GROUND
RS8 IGN_BAK_SW
GND 2 1 1 ENABLE_BACKUP_SWITCH
IGN_BAK_VOLTS 2 BATTERY_INFO
IGN_BAK_LOW_VOLTS 3 LOW_VOLT_WARNING
6 PASSTHROUGH_POWER_IN
IGN_PWR 7 PASSTHROUGH_POWER_IN
8 PASSTHROUGH_POWER_IN
12 POWER_OUT
14 AWG IGN_PWR 13 POWER_OUT
14 POWER_OUT
15 POWER_OUT

Power/Ground 20 AWG
Signals 22 AWG
Unless Noted

Wire Gauges
1A: 24 AWG
2.5A: 22 AWG
5A: 20 AWG
7.5A: 18 AWG
10A: 16 AWG
15A: 14 AWG
20A: 12 AWG
40A: 10 AWG
Data: 22 AWG

PANEL_LIGHTS_PWR
START_LT GND
TOGA_LT
GLIDE_LT
Extra wire originally used for fan.
Heatshrinked

PANEL_PWR FAN GND
10k POT caused issues with fan
Using 1K
LT DTM3R LT DTM3P LIGHTS_POT
LIGHTS_HI
GND

GMU DTM6R GMU DTM6P
GMU11_PWR GMU11_PWR 18 AWG
GMU11_BAK_PWR GMU11_BAK_PWR 18 AWG
LEMO_PWR LEMO_PWR
CAMERA_PWR CAMERA
CABIN_PWR
GND
CABIN_LT1
CABIN_LT2

12V_PWR
PILOT_USB_PWR
GSA28_PWR
FUEL_PWR
GND
PILOT_USB_GND
PWR DTP4R PWR DTP4P
GSA28_PWR
Red Black FUEL_PUMP
FUELR DT2R FUELP DT2P
14 AWG 12V
16 AWG GSA 28
16 AWG Fuel Pump
PILOT12V
PASSENGER12V
PASSENGERUSB
STARLINK12V

GROUND_BLOCK
GSTUD GWIRE
AIRCRAFT_GROUND
GND_BUS
GND
34 Pin Ground Block

FLPR DT4R FLPP DT4P
FLAPS_1 White
FLAPS_2 White/Blue
SMOKE_PWR
GND
FLP2R DT2R FLP2P DT2P
Red Black
FLAPS
SMOKE
Currently Not Installed
16 AWG Flaps, Smoke

POSR DTM3R POSP DTM3P POS2R DTM3R POS2P DTM3P FLAPS_POS
FLAPS_REF White/Orange
FLAPS_POS White
FLAPS_GND White/Blue
+5V SENSE LOW

STK DTM8R STK DTM8P
STK2 DTM12R STK2 DTM12P
GND White/Black Black
TRIM_UP White/Blue Blue
TRIM_DOWN White/Green Green
TRIM_LEFT White/Purple Purple
TRIM_RIGHT White/Yellow Yellow
FLAPS_UP White/Orange Pink
FLAPS_DOWN White/Grey Brown
PILOT_PTT White
CWS White/Red Red
TRIM_UP_SW
TRIM_DN_SW
TRIM_LEFT_SW
TRIM_RIGHT_SW
FLAPS_UP_SW
FLAPS_DN_SW
PILOT_PTT_SW
CWS_SW

3 & 2 Conductor Wire
PIT DTM6R PIT DTM6R
PITCH_GND White/Orange
PITCH_POS White
PITCH_REF White/Blue
PITCH_TRIM_2 White/Blue
PITCH_TRIM_1 White
GND Black
20 AWG Trim
Routes through GSA 28
Shielded if ever use VP-X Variable Speed w/o GSA 28

5 Conductor Wire
3 & 2 Conductor Wire
ROL DTM6R ROL DTM6R
ROLL_GND White/Orange
ROLL_POS White/Green
ROLL_REF White/Blue
ROLL_TRIM_2 White/Red
ROLL_TRIM_1 White
RDRM DT6MR RDRM DT6MP
RUDDER_T3
+5V SENSE LOW TRIM1 TRIM2
Direction reversed in software

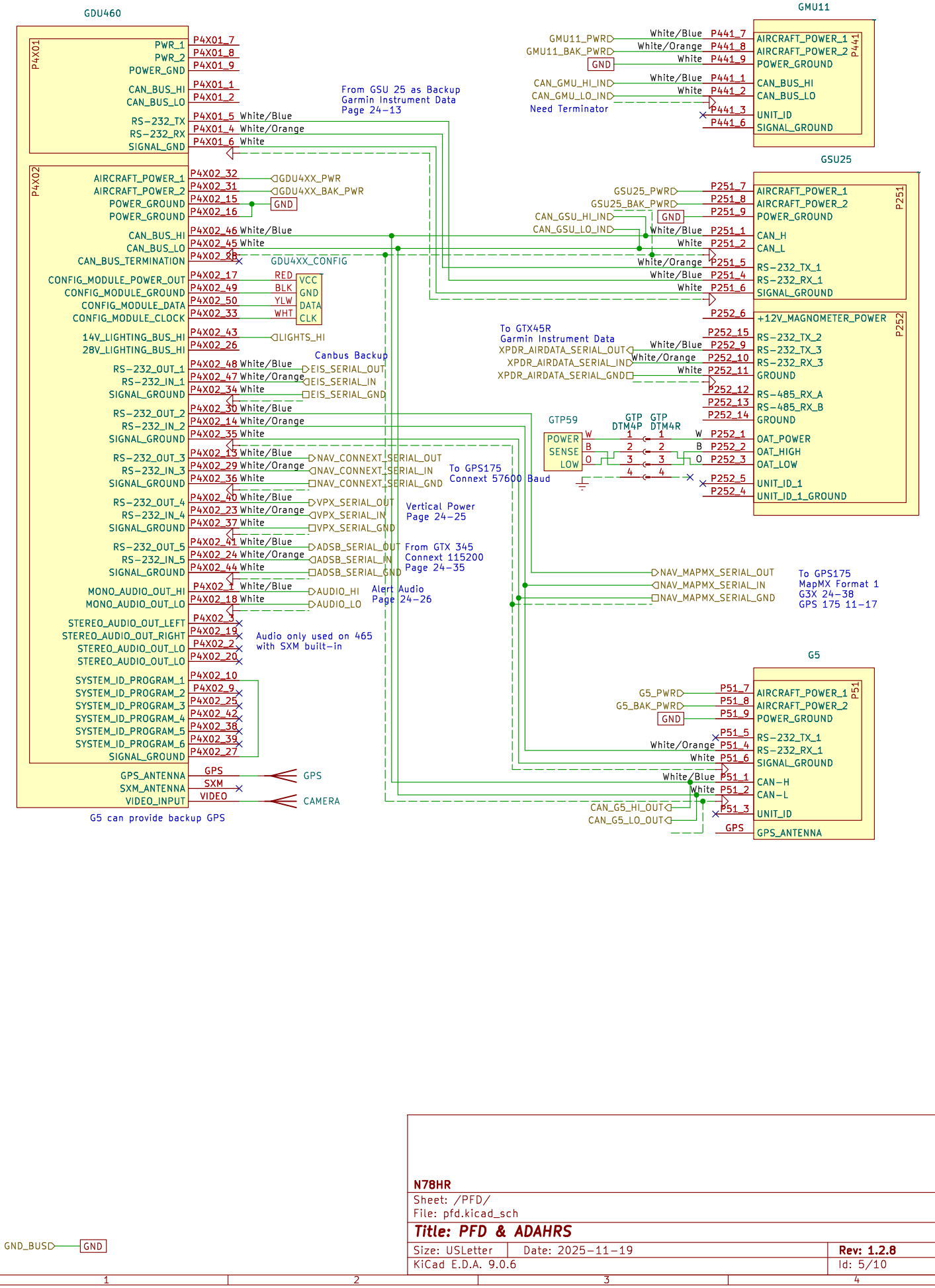
Right Wing Root
Black LEFT_POS
Black RIGHT_POS
TAIL_POS
STB DT6R STB DT6P
POSITION_PWR White
STROBE_PWR White/Blue
GND
16 AWG All
LEFT_LIGHT_PWR
RIGHT_LIGHT_PWR
TOP_STROBE
PWR GROUND SYNC
Top Strobe Not Installed Yet
BOTTOM_STROBE
White White/Blue Purple
Right Wing Root
Red LEFT_LT
Red RIGHT_LT

Position
* Tail .13A
* Wing .25A Each
* Total < 1A

Left/Right Lights
* 0.75A Each

Strobe Lights
* 2.32A Each (Peak)
* Total < 5A

N78HR
Sheet: /Power/
File: power.kicad_sch
Title: Power Distribution
Size: B | Date: 2025-11-19 | Rev: 1.2.8
KiCad E.D.A. 9.0.6 | Id: 4/10


GDU460
P4X01
PWR_1
PWR_2
POWER_GND
CAN_BUS_HI
CAN_BUS_LO
RS-232_TX
RS-232_RX
SIGNAL_GND
P4X02
AIRCRAFT_POWER_1
AIRCRAFT_POWER_2
POWER_GROUND
CAN_BUS_TERMINATION
CONFIG_MODULE_POWER_OUT
CONFIG_MODULE_GROUND
CONFIG_MODULE_DATA
CONFIG_MODULE_CLOCK
14V_LIGHTING_BUS_HI
28V_LIGHTING_BUS_HI
RS-232_OUT_1
RS-232_IN_1
RS-232_OUT_2
RS-232_IN_2
RS-232_OUT_3
RS-232_IN_3
RS-232_OUT_4
RS-232_IN_4
RS-232_OUT_5
RS-232_IN_5
MONO_AUDIO_OUT_HI
MONO_AUDIO_OUT_LO
STEREO_AUDIO_OUT_LEFT
STEREO_AUDIO_OUT_RIGHT
STEREO_AUDIO_OUT_LO
STEREO_AUDIO_OUT_LO
SYSTEM_ID_PROGRAM_1
SYSTEM_ID_PROGRAM_2
SYSTEM_ID_PROGRAM_3
SYSTEM_ID_PROGRAM_4
SYSTEM_ID_PROGRAM_5
SYSTEM_ID_PROGRAM_6
GPS_ANTENNA
SXM_ANTENNA
VIDEO_INPUT
GPS
SXM
VIDEO
GPS
CAMERA
G5 can provide backup GPS
From GSU 25 as Backup
Garmin Instrument Data
Page 24-13
GDU4XX_PWR
GDU4XX_BAK_PWR
GDU4XX_CONFIG
RED
BLK
YLW
WHT
VCC
GND
DATA
CLK
LIGHTS_HI
Canbus Backup
EIS_SERIAL_OUT
EIS_SERIAL_IN
EIS_SERIAL_GND
NAV_CONNEXT_SERIAL_OUT
NAV_CONNEXT_SERIAL_IN
NAV_CONNEXT_SERIAL_GND
To GPS175
Connext 57600 Baud
VPX_SERIAL_OUT
VPX_SERIAL_IN
VPX_SERIAL_GND
Vertical Power
Page 24-25
ADSB_SERIAL_OUT
ADSB_SERIAL_IN
ADSB_SERIAL_GND
From GTX 345
Connext 115200
Page 24-35
AUDIO_HI
AUDIO_LO
Alert Audio
Page 24-26
Audio only used on 465
with SXM built-in
GMU11
GMU11_PWRD
GMU11_BAK_PWRD
GND
CAN_GMU_HI_IND
CAN_GMU_LO_IND
Need Terminator
AIRCRAFT_POWER_1
AIRCRAFT_POWER_2
POWER_GROUND
CAN_BUS_HI
CAN_BUS_LO
UNIT_ID
SIGNAL_GROUND
GSU25
GSU25_PWRD
GSU25_BAK_PWRD
CAN_GSU_HI_IND
CAN_GSU_LO_IND
CAN_H
CAN_L
RS-232_TX_1
RS-232_RX_1
SIGNAL_GROUND
+12V_MAGNOMETER_POWER
To GTX45R
Garmin Instrument Data
XPDR_AIRDATA_SERIAL_OUT
XPDR_AIRDATA_SERIAL_IN
XPDR_AIRDATA_SERIAL_GND
RS-232_TX_2
RS-232_TX_3
RS-232_RX_3
GROUND
RS-485_RX_A
RS-485_RX_B
GTP59
POWER
SENSE
LOW
GTP DTM4P
GTP DTM4R
OAT_POWER
OAT_HIGH
OAT_LOW
UNIT_ID_1
UNIT_ID_1_GROUND
NAV_MAPMX_SERIAL_OUT
NAV_MAPMX_SERIAL_IN
NAV_MAPMX_SERIAL_GND
To GPS175
MapMX Format 1
G3X 24-38
GPS 175 11-17
G5
G5_PWRD
G5_BAK_PWRD
CAN-H
CAN-L
CAN_G5_HI_OUT
CAN_G5_LO_OUT
GPS_ANTENNA
GND_BUS
GND
N78HR
Sheet: /PFD/
File: pfd.kicad_sch
Title: PFD & ADAHRS
Size: USLetter
Date: 2025-11-19
KiCad E.D.A. 9.0.6
Rev: 1.2.8
Id: 5/10

GEA24

P241
AIRCRAFT_POWER_1
AIRCRAFT_POWER_2
GROUND
CAN_HI
CAN_LO
RS-232_TX
RS-232_RX
SIGNAL_GND

P242
CHT1_HI
CHT1_LO
CHT2_HI
CHT2_LO
CHT3_HI
CHT3_LO
CHT4_HI
CHT4_LO
CHT5_HI/CHT1_RESISTIVE_HI
CHT5_LO/CHT1_RESISTIVE_LO
CHT5_HI/CHT2_RESISTIVE_HI
CHT6_LO/CHT2_RESISTIVE_LO
EGT1_HI
EGT1_LO
EGT_2_HI
EGT2_LO
EGT3_HI
EGT3_LO
EGT4_HI
EGT4_LO
EGT5_HI
EGT5_LO
EGT6_HI
EGT6_LO

P243
FUEL_PRESS
FUEL_PRESS_XDCR_+12V
FUEL_PRESS_XDCR_+5V
FUEL_PRESS_GND
RPM_1
RPM_XDCR_+12V_1
RPM_XDCR_GND_1
RPM_2
RPM_XDCR_+12V_2
RPM_XDCR_GND_2
MANIFOLD_PRESS
MANIFOLD_PRESS_XDCR_+12V
MANIFOLD_PRESS_XDCR_+5V
MANIFOLD_PRESS_GND
OIL_PRESS_HI
OIL_PRESS_XDCR_+12V
OIL_PRESS_XDCR_+5V
OIL_PRESS_GND
Shared with J244_37 FUEL_RETURN
FUEL_XDCR_+12V_1
GUEL_XDCR_GND_1
Shared with J244_36 FUEL_FLOW
FUEL_XDCR_+12V_2
FUEL_XDCR_GND_2
GP+5V_1
GP_GND_1
POS_6/TIT_1/MISC_TEMP_1_HI
POS_6/TIT_1/MISC_TEMP_1_LO
POS_7/TIT_2/MISC_TEMP_2_HI
POS_7/TIT_2/MISC_TEMP_2_LO
OIL_TEMP_HI
OIL_TEMP_LO
SHUNT_1_HI
SHUNT_1_LO
Shared with J244_46 SHUNT_2_HI
Shared with J244_47 SHUNT_2_LO

P244
FADEC_CAN2_H
FADEC_CAN2_L
GEA24B Only FADEC_CAN3_HI
FADEC_CAN3_LO
FUEL_QTY_1
FUEL_QTY_+5V_1
FUEL_QTY_1_GND
FUEL_QTY_2
FUEL_QTY_+5V_2
FUEL_QTY_2_GND
POS_3/GP_3/FUEL_QTY_3
POS_3_HI/+5V_3
POS_3_LO/GND
POS_4/GP_4/FUEL_QTY_4
POS_4_HI/+5V_4
POS_4_LO/GND
POS_5/GP_5/FUEL_QTY_5
POS_5_HI/+5V_5
POS_5_LO/GND
GP1/POS_1
GP1_HI/+5V
GP1_LO/GND
GP2/POS_2
GP2_HI/+5V
GP2_LO/GND
GP_+5V_2
GP_GND_2
GP_+5V_3
GP_GND_3
GP_+12V
VOLTS_1
VOLTS_2
Shared with J243_23 FUEL_FLOW
FUEL_XDCR_+12V_3
FUEL_XDCR_GND_3
Shared with J243_21 FUEL_RETURN
FUEL_XDCR_+12V_4
FUEL_XDCR_GND_4
DISCRETE_IN_1
DISCRETE_IN_2
DISCRETE_IN_3
DISCRETE_IN_4
Shared with J243_35 SHUNT_2_HI
Shared with J243_34 SHUNT_2_LO
DISCRETE_OUT_1/WARNING
DISCRETE_OUT_2/CAUTION
SYSTEM_ID_1A
SYSTEM_ID_1B_/_GND

GND_BUS — GND

P241_7 — GEA24_PWR
P241_8 — GEA24_BAK_PWR
P241_9 — GND

Use DB9 CAN terminator if panel is not connected to airframe.

P241_1 White/Blue — CAN_HI_IN
P241_2 White — CAN_LOW_IN
P241_5 White/Orange — SERIAL_OUT
P241_4 White/Blue — SERIAL_IN
P241_6 White — SERIAL_GND

CAN DTM3R — CAN DTM3P
1 White/Blue — CAN_HI_OUT
2 White — CAN_LO_OUT
3

CHT IE P-100 Screw In CHT Probe (Red/Yellow)

Reusing US-8A Connector / Wiring

CHT 206037-1 — CHT 206036-3

P242_24 Red	1	1 Red — CHT1
P242_12 Yellow	2	2 Yellow
P242_22	3	3 — CHT2
P242_10	4	4
P242_20	5	5 — CHT3
P242_8	6	6
P242_18	7	7 — CHT4
P242_6	8	8
P242_16	9	9 — CHT5
P242_4	10	10
P242_14	11	11 — CHT6
P242_2	12	12
P242_25 Red	13	13 Red — OIL_AIR_PRE_TEMP
P242_13 Yellow	14	14 Yellow
P242_23	15	15 — OIL_AIR_POST_TEMP
P242_11	16	16
P242_21		
P242_9		
P242_19		
P242_7		
P242_17		
P242_5		
P242_15		
P242_3		

EGT IE P-110 Probe

EGT 206037-1 — EGT 206036-3

	1	1 Red — EGT1
	2	2 Yellow
	3	3 — EGT2
	4	4
	5	5 — EGT3
	6	6
	7	7 — EGT4
	8	8
	9	9 — EGT5
	10	10
	11	11 — EGT6
	12	12
	13	13 Red — COWL_TEMP
	14	14 Yellow
	15	15 — WING_TEMP
	16	16

IE Probes

Not enough temperature inputs to use this, may swap Cowl Temp with the Oil Air temps.

FP DTM4R — FP DTM4P — FUEL_PRESSURE GPT 30G
White/Orange 1 — 1 White/Orange R — VIN
White 2 — 2 White G — OUPUT
White/Blue 3 — 3 White/Blue B — GROUND
4 — 4

RPM DTM4R — RPM DTM4P — POWER_VSS GROUND SIGNAL_OUT UNUSED — RPM UMS 1A3
1 — 1 White — 1
2 — 2 White/Orange — 2
3 — 3 White/Blue — 3
4 — 4 — 4

MAN DTM4R — MAN DTM4P — MANIFOLD_PRESSURE GPT 30A
1 — 1 White/Orange R — VIN
2 — 2 White G — OUPUT
3 — 3 White/Blue B — GROUND
4 — 4

OP DTM4R — OP DTM4P — OIL_PRESSURE GPT 15G
1 — 1 White/Orange R — VIN
2 — 2 White G — OUPUT
3 — 3 White/Blue B — GROUND
4 — 4

FF DTM4R — FF DTM4P — FUEL_FLOW FT-60
1 — 1 Red R — POWER
2 — 2 White B — GROUND
3 — 3 Black W — SIGNAL_OUT
4 — 4

OT DTM3R — OT DTM3P — OIL_TEMP UMA1B3-2.5R
1 — 1 White
2 — 2 White/Blue
3 — 3

Amps come from VPX

FUEL DTM2R — FUEL DTM2P — Fuel Page 26-2
1 — 1 — FUEL_LEFT — IE F-385B Left
2 — 2 — FUEL_RIGHT — IE F-385C Right

CO DTM4R — CO DTM4P — CO
1 — 1 — RED — +5V
2 — 2 — BLK — GROUND
3 — 3 — WHT — CO
4 — 4 — YLW — O2_PSI
BLU — SPO2
GRN — RS232
Analog

P244_22 — IGN_BAK_VOLTS

SMK DTM2R — SMK DTM2P — Currently not installed
1 — 1 — SMOKE_LOW_SW
2 — 2

Voltage comes from VPX

P244_25
P244_28 — EFIS_BAK_VOLTS

P244_40 — EFIS_BAK_LOW_VOLTS
P244_41 — IGN_BAK_LOW_VOLTS
P244_42 — GLIDE_SW — GND
P244_43

N78HR	
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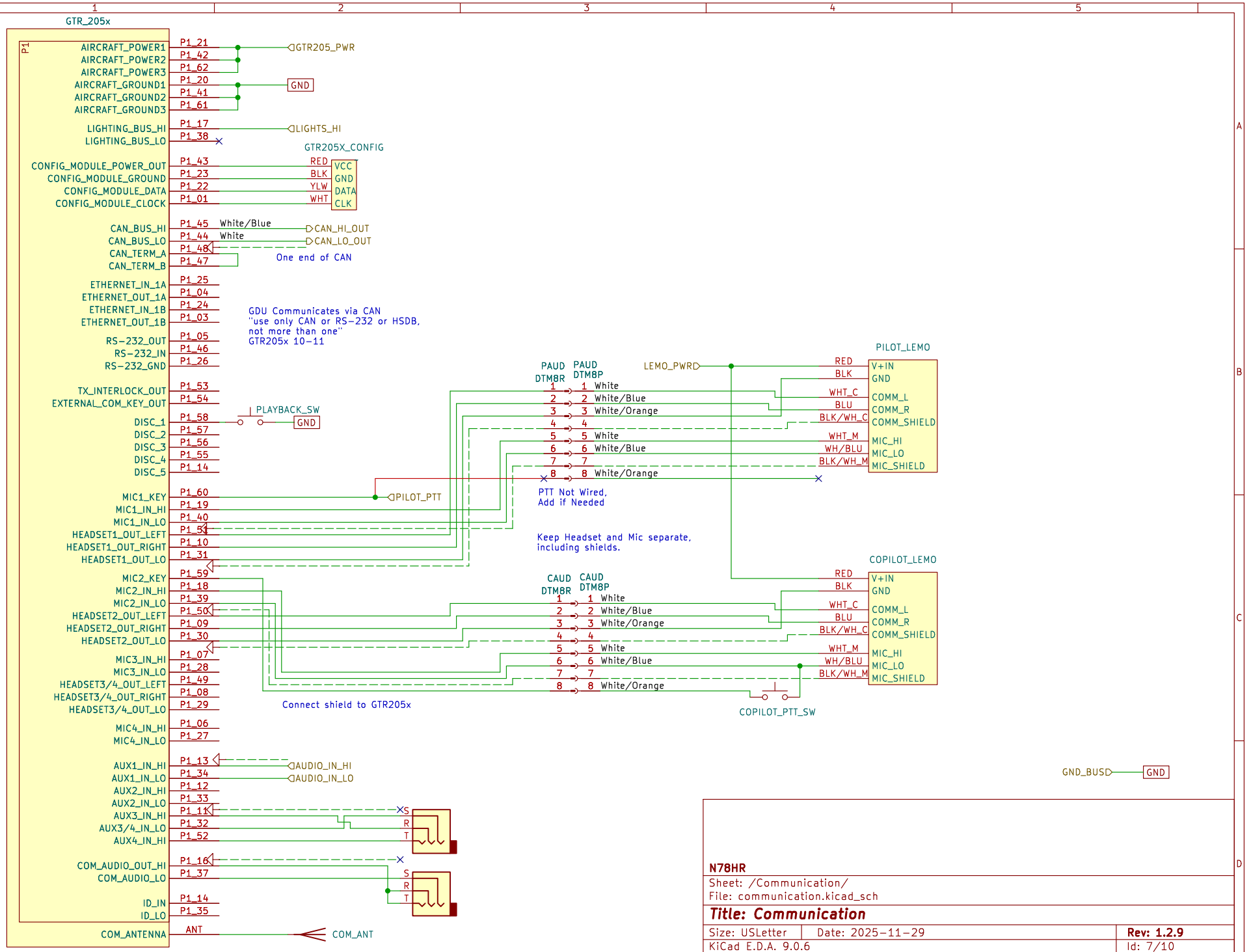
File: eis.kicad_sch	
Title: EIS	
Size: USLedger	Date: 2025-12-19 — Rev: 1.2.10
KiCad E.D.A. 9.0.6	Id: 6/10


GTR_205x
P1
AIRCRAFT_POWER1
AIRCRAFT_POWER2
AIRCRAFT_POWER3
AIRCRAFT_GROUND1
AIRCRAFT_GROUND2
AIRCRAFT_GROUND3
LIGHTING_BUS_HI
LIGHTING_BUS_LO
CONFIG_MODULE_POWER_OUT
CONFIG_MODULE_GROUND
CONFIG_MODULE_DATA
CONFIG_MODULE_CLOCK
CAN_BUS_HI
CAN_BUS_LO
CAN_TERM_A
CAN_TERM_B
ETHERNET_IN_1A
ETHERNET_OUT_1A
ETHERNET_IN_1B
ETHERNET_OUT_1B
RS-232_OUT
RS-232_IN
RS-232_GND
TX_INTERLOCK_OUT
EXTERNAL_COM_KEY_OUT
DISC_1
DISC_2
DISC_3
DISC_4
DISC_5
MIC1_KEY
MIC1_IN_HI
MIC1_IN_LO
HEADSET1_OUT_LEFT
HEADSET1_OUT_RIGHT
HEADSET1_OUT_LO
MIC2_KEY
MIC2_IN_HI
MIC2_IN_LO
HEADSET2_OUT_LEFT
HEADSET2_OUT_RIGHT
HEADSET2_OUT_LO
MIC3_IN_HI
MIC3_IN_LO
HEADSET3/4_OUT_LEFT
HEADSET3/4_OUT_RIGHT
HEADSET3/4_OUT_LO
MIC4_IN_HI
MIC4_IN_LO
AUX1_IN_HI
AUX1_IN_LO
AUX2_IN_HI
AUX2_IN_LO
AUX3_IN_HI
AUX3/4_IN_LO
AUX4_IN_HI
COM_AUDIO_OUT_HI
COM_AUDIO_LO
ID_IN
ID_LO
COM_ANTENNA
P1_21
P1_42
P1_62
P1_20
P1_41
P1_61
P1_17
P1_38
P1_43
P1_23
P1_22
P1_01
P1_45
P1_44
P1_48
P1_47
P1_25
P1_04
P1_24
P1_03
P1_05
P1_46
P1_26
P1_53
P1_54
P1_58
P1_57
P1_56
P1_55
P1_14
P1_60
P1_19
P1_40
P1_51
P1_10
P1_31
P1_59
P1_18
P1_39
P1_50
P1_09
P1_30
P1_07
P1_28
P1_49
P1_08
P1_29
P1_06
P1_27
P1_13
P1_34
P1_12
P1_33
P1_11
P1_32
P1_52
P1_16
P1_37
P1_14
P1_35
ANT
GTR205_PWR
GND
LIGHTS_HI
GTR205X_CONFIG
RED
BLK
YLW
WHT
VCC
GND
DATA
CLK
White/Blue
White
CAN_HI_OUT
CAN_LO_OUT
One end of CAN
GDU Communicates via CAN
"use only CAN or RS-232 or HSDB,
not more than one"
GTR205x 10-11
PLAYBACK_SW
PILOT_PTT
PAUD DTM8R
PAUD DTM8P
LEMO_PWR
PILOT_LEMO
V+IN
COMM_L
COMM_R
COMM_SHIELD
MIC_HI
MIC_LO
MIC_SHIELD
WHT_C
BLU
BLK/WH_C
WHT_M
WH/BLU
BLK/WH_M
White
White/Blue
White/Orange
PTT Not Wired,
Add if Needed
Keep Headset and Mic separate,
including shields.
CAUD DTM8R
CAUD DTM8P
COPILOT_LEMO
COPILOT_PTT_SW
Connect shield to GTR205x
AUDIO_IN_HI
AUDIO_IN_LO
S
R
T
COM_ANT
GND_BUS
N78HR
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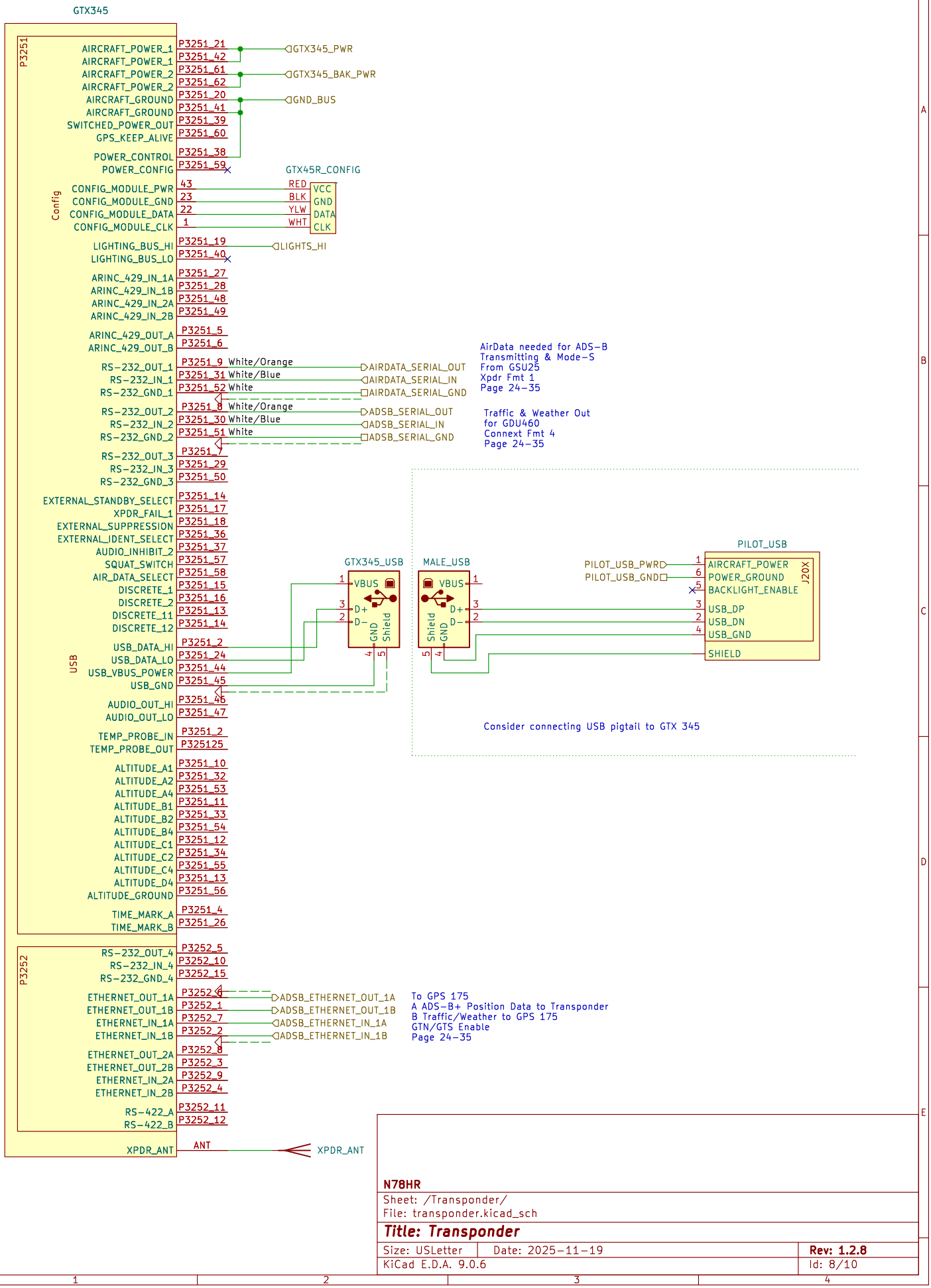
File: communication.kicad_sch
Title: Communication
Size: USLetter
Date: 2025-11-29
Rev: 1.2.9
KiCad E.D.A. 9.0.6
Id: 7/10


GTX345
P3251
AIRCRAFT_POWER_1
AIRCRAFT_POWER_1
AIRCRAFT_POWER_2
AIRCRAFT_POWER_2
AIRCRAFT_GROUND
AIRCRAFT_GROUND
SWITCHED_POWER_OUT
GPS_KEEP_ALIVE
POWER_CONTROL
POWER_CONFIG
P3251_21
P3251_42
P3251_61
P3251_62
P3251_20
P3251_41
P3251_39
P3251_60
P3251_38
P3251_59
GTX345_PWR
GTX345_BAK_PWR
GND_BUS
GTX45R_CONFIG
Config
CONFIG_MODULE_PWR
CONFIG_MODULE_GND
CONFIG_MODULE_DATA
CONFIG_MODULE_CLK
43
23
22
1
RED
BLK
YLW
WHT
VCC
GND
DATA
CLK
LIGHTING_BUS_HI
LIGHTING_BUS_LO
P3251_19
P3251_40
LIGHTS_HI
ARINC_429_IN_1A
ARINC_429_IN_1B
ARINC_429_IN_2A
ARINC_429_IN_2B
ARINC_429_OUT_A
ARINC_429_OUT_B
P3251_27
P3251_28
P3251_48
P3251_49
P3251_5
P3251_6
RS-232_OUT_1
RS-232_IN_1
RS-232_GND_1
P3251_9 White/Orange
P3251_31 White/Blue
P3251_52 White
AIRDATA_SERIAL_OUT
AIRDATA_SERIAL_IN
AIRDATA_SERIAL_GND
AirData needed for ADS-B
Transmitting & Mode-S
From GSU25
Xpdr Fmt 1
Page 24-35
RS-232_OUT_2
RS-232_IN_2
RS-232_GND_2
P3251_8 White/Orange
P3251_30 White/Blue
P3251_51 White
ADSB_SERIAL_OUT
ADSB_SERIAL_IN
ADSB_SERIAL_GND
Traffic & Weather Out
for GDU460
Connext Fmt 4
Page 24-35
RS-232_OUT_3
RS-232_IN_3
RS-232_GND_3
P3251_7
P3251_29
P3251_50
EXTERNAL_STANDBY_SELECT
XPDR_FAIL_1
EXTERNAL_SUPPRESSION
EXTERNAL_IDENT_SELECT
AUDIO_INHIBIT_2
SQUAT_SWITCH
AIR_DATA_SELECT
DISCRETE_1
DISCRETE_2
DISCRETE_11
DISCRETE_12
P3251_14
P3251_17
P3251_18
P3251_36
P3251_37
P3251_57
P3251_58
P3251_15
P3251_16
P3251_13
P3251_14
GTX345_USB
MALE_USB
PILOT_USB
PILOT_USB_PWR
PILOT_USB_GND
VBUS
D+
D-
GND
Shield
AIRCRAFT_POWER
POWER_GROUND
BACKLIGHT_ENABLE
USB_DP
USB_DN
USB_GND
SHIELD
J20X
USB
USB_DATA_HI
USB_DATA_LO
USB_VBUS_POWER
USB_GND
P3251_2
P3251_24
P3251_44
P3251_45
AUDIO_OUT_HI
AUDIO_OUT_LO
P3251_46
P3251_47
Consider connecting USB pigtail to GTX 345
TEMP_PROBE_IN
TEMP_PROBE_OUT
P3251_2
P325125
ALTITUDE_A1
ALTITUDE_A2
ALTITUDE_A4
ALTITUDE_B1
ALTITUDE_B2
ALTITUDE_B4
ALTITUDE_C1
ALTITUDE_C2
ALTITUDE_C4
ALTITUDE_D4
ALTITUDE_GROUND
P3251_10
P3251_32
P3251_53
P3251_11
P3251_33
P3251_54
P3251_12
P3251_34
P3251_55
P3251_13
P3251_56
TIME_MARK_A
TIME_MARK_B
P3251_4
P3251_26
P3252
RS-232_OUT_4
RS-232_IN_4
RS-232_GND_4
P3252_5
P3252_10
P3252_15
ETHERNET_OUT_1A
ETHERNET_OUT_1B
ETHERNET_IN_1A
ETHERNET_IN_1B
P3252_6
P3252_1
P3252_7
P3252_2
ADSB_ETHERNET_OUT_1A
ADSB_ETHERNET_OUT_1B
ADSB_ETHERNET_IN_1A
ADSB_ETHERNET_IN_1B
To GPS 175
A ADS-B+ Position Data to Transponder
B Traffic/Weather to GPS 175
GTN/GTS Enable
Page 24-35
ETHERNET_OUT_2A
ETHERNET_OUT_2B
ETHERNET_IN_2A
ETHERNET_IN_2B
P3252_8
P3252_3
P3252_9
P3252_4
RS-422_A
RS-422_B
P3252_11
P3252_12
XPDR_ANT
ANT
XPDR_ANT
N78HR
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Size: USLetter
Date: 2025-11-19
Rev: 1.2.8
KiCad E.D.A. 9.0.6
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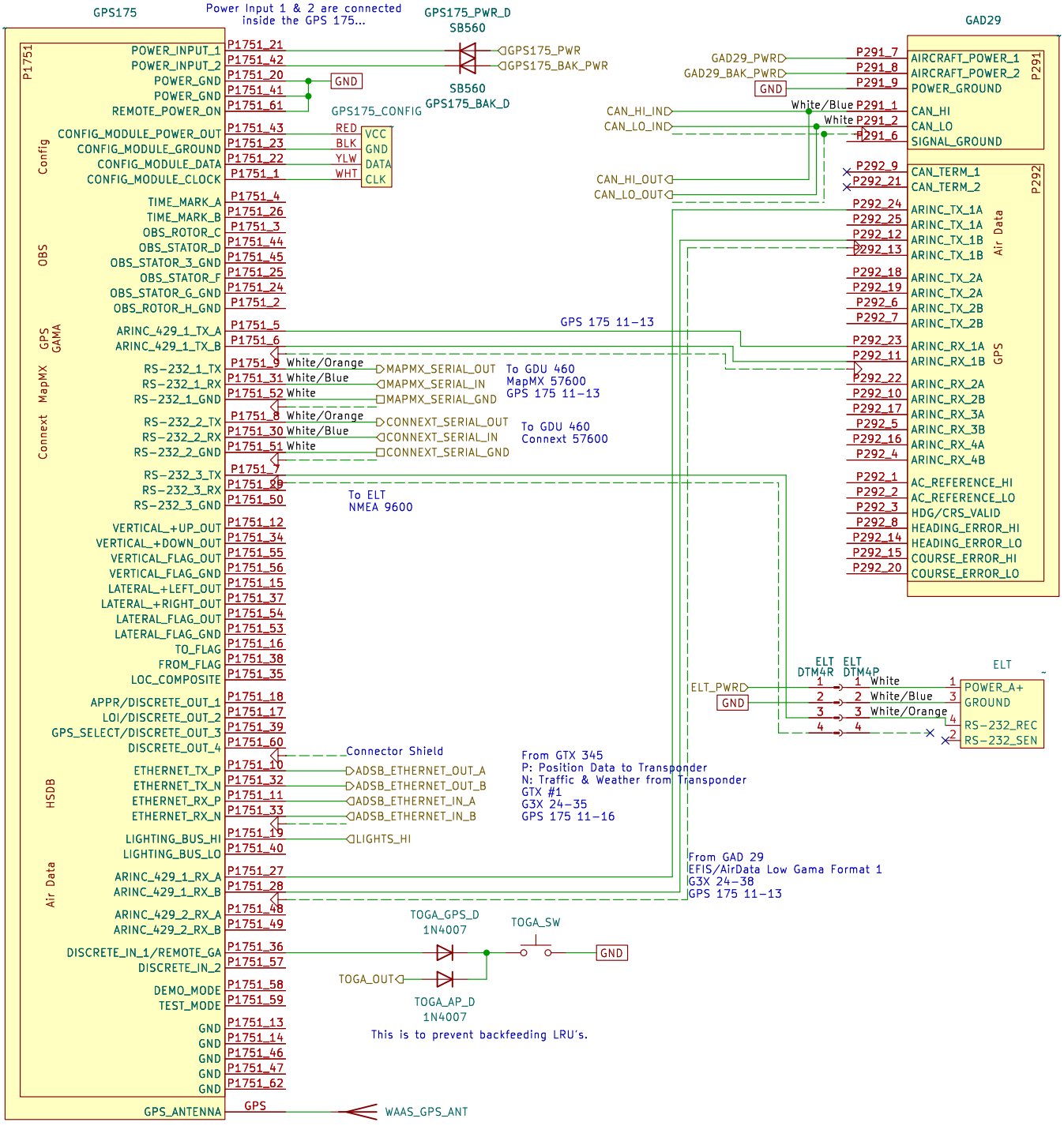
GPS175
P1751
POWER_INPUT_1
POWER_INPUT_2
POWER_GND
POWER_GND
REMOTE_POWER_ON
Config
CONFIG_MODULE_POWER_OUT
CONFIG_MODULE_GROUND
CONFIG_MODULE_DATA
CONFIG_MODULE_CLOCK
OBS
TIME_MARK_A
TIME_MARK_B
OBS_ROTOR_C
OBS_STATOR_D
OBS_STATOR_3_GND
OBS_STATOR_F
OBS_STATOR_G_GND
OBS_ROTOR_H_GND
GPS GAMA
ARINC_429_1_TX_A
ARINC_429_1_TX_B
MapMX
RS-232_1_TX
RS-232_1_RX
RS-232_1_GND
Connext
RS-232_2_TX
RS-232_2_RX
RS-232_2_GND
RS-232_3_TX
RS-232_3_RX
RS-232_3_GND
VERTICAL_+UP_OUT
VERTICAL_+DOWN_OUT
VERTICAL_FLAG_OUT
VERTICAL_FLAG_GND
LATERAL_+LEFT_OUT
LATERAL_+RIGHT_OUT
LATERAL_FLAG_OUT
LATERAL_FLAG_GND
TO_FLAG
FROM_FLAG
LOC_COMPOSITE
APPR/DISCRETE_OUT_1
LOI/DISCRETE_OUT_2
GPS_SELECT/DISCRETE_OUT_3
DISCRETE_OUT_4
HSDB
ETHERNET_TX_P
ETHERNET_TX_N
ETHERNET_RX_P
ETHERNET_RX_N
LIGHTING_BUS_HI
LIGHTING_BUS_LO
Air Data
ARINC_429_1_RX_A
ARINC_429_1_RX_B
ARINC_429_2_RX_A
ARINC_429_2_RX_B
DISCRETE_IN_1/REMOTE_GA
DISCRETE_IN_2
DEMO_MODE
TEST_MODE
GND
GPS_ANTENNA
P1751_21
P1751_42
P1751_20
P1751_41
P1751_61
P1751_43
P1751_23
P1751_22
P1751_1
P1751_4
P1751_26
P1751_3
P1751_44
P1751_45
P1751_25
P1751_24
P1751_2
P1751_5
P1751_6
P1751_9
P1751_31
P1751_52
P1751_8
P1751_30
P1751_51
P1751_7
P1751_29
P1751_50
P1751_12
P1751_34
P1751_55
P1751_56
P1751_15
P1751_37
P1751_54
P1751_53
P1751_16
P1751_38
P1751_35
P1751_18
P1751_17
P1751_39
P1751_60
P1751_10
P1751_32
P1751_11
P1751_33
P1751_19
P1751_40
P1751_27
P1751_28
P1751_48
P1751_49
P1751_36
P1751_57
P1751_58
P1751_59
P1751_13
P1751_14
P1751_46
P1751_47
P1751_62
GND
GPS
WAAS_GPS_ANT
Power Input 1 & 2 are connected inside the GPS 175...
GPS175_PWR_D
SB560
GPS175_PWR
GPS175_BAK_PWR
SB560
GPS175_BAK_D
GPS175_CONFIG
RED
BLK
YLW
WHT
VCC
GND
DATA
CLK
GPS 175 11-13
White/Orange
White/Blue
White
MAPMX_SERIAL_OUT
MAPMX_SERIAL_IN
MAPMX_SERIAL_GND
To GDU 460
MapMX 57600
GPS 175 11-13
CONNEXT_SERIAL_OUT
CONNEXT_SERIAL_IN
CONNEXT_SERIAL_GND
To GDU 460
Connext 57600
To ELT
NMEA 9600
Connector Shield
ADSB_ETHERNET_OUT_A
ADSB_ETHERNET_OUT_B
ADSB_ETHERNET_IN_A
ADSB_ETHERNET_IN_B
From GTX 345
P: Position Data to Transponder
N: Traffic & Weather from Transponder
GTX #1
G3X 24-35
GPS 175 11-16
LIGHTS_HI
From GAD 29
EFIS/AirData Low Gama Format 1
G3X 24-38
GPS 175 11-13
TOGA_GPS_D
1N4007
TOGA_SW
TOGA_OUT
TOGA_AP_D
1N4007
This is to prevent backfeeding LRU's.
GAD29
GAD29_PWR
GAD29_BAK_PWR
GND
CAN_HI_IND
CAN_LO_IND
CAN_HI_OUT
CAN_LO_OUT
White/Blue
White
P291
P291_7
P291_8
P291_9
P291_1
P291_2
P291_6
AIRCRAFT_POWER_1
AIRCRAFT_POWER_2
POWER_GROUND
CAN_HI
CAN_LO
SIGNAL_GROUND
P292
P292_9
P292_21
P292_24
P292_25
P292_12
P292_13
P292_18
P292_19
P292_6
P292_7
P292_23
P292_11
P292_22
P292_10
P292_17
P292_5
P292_16
P292_4
P292_1
P292_2
P292_3
P292_8
P292_14
P292_15
P292_20
CAN_TERM_1
CAN_TERM_2
ARINC_TX_1A
ARINC_TX_1A
ARINC_TX_1B
ARINC_TX_1B
ARINC_TX_2A
ARINC_TX_2A
ARINC_TX_2B
ARINC_TX_2B
ARINC_RX_1A
ARINC_RX_1B
ARINC_RX_2A
ARINC_RX_2B
ARINC_RX_3A
ARINC_RX_3B
ARINC_RX_4A
ARINC_RX_4B
AC_REFERENCE_HI
AC_REFERENCE_LO
HDG/CRS_VALID
HEADING_ERROR_HI
HEADING_ERROR_LO
COURSE_ERROR_HI
COURSE_ERROR_LO
Air Data
GPS
ELT
ELT DTM4R
ELT DTM4P
ELT_PWRD
GND
White
White/Blue
White/Orange
POWER_A+
GROUND
RS-232_REC
RS-232_SEN
GND_BUS
GND
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Size: USLetter
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Rev: 1.2.10
KiCad E.D.A. 9.0.6
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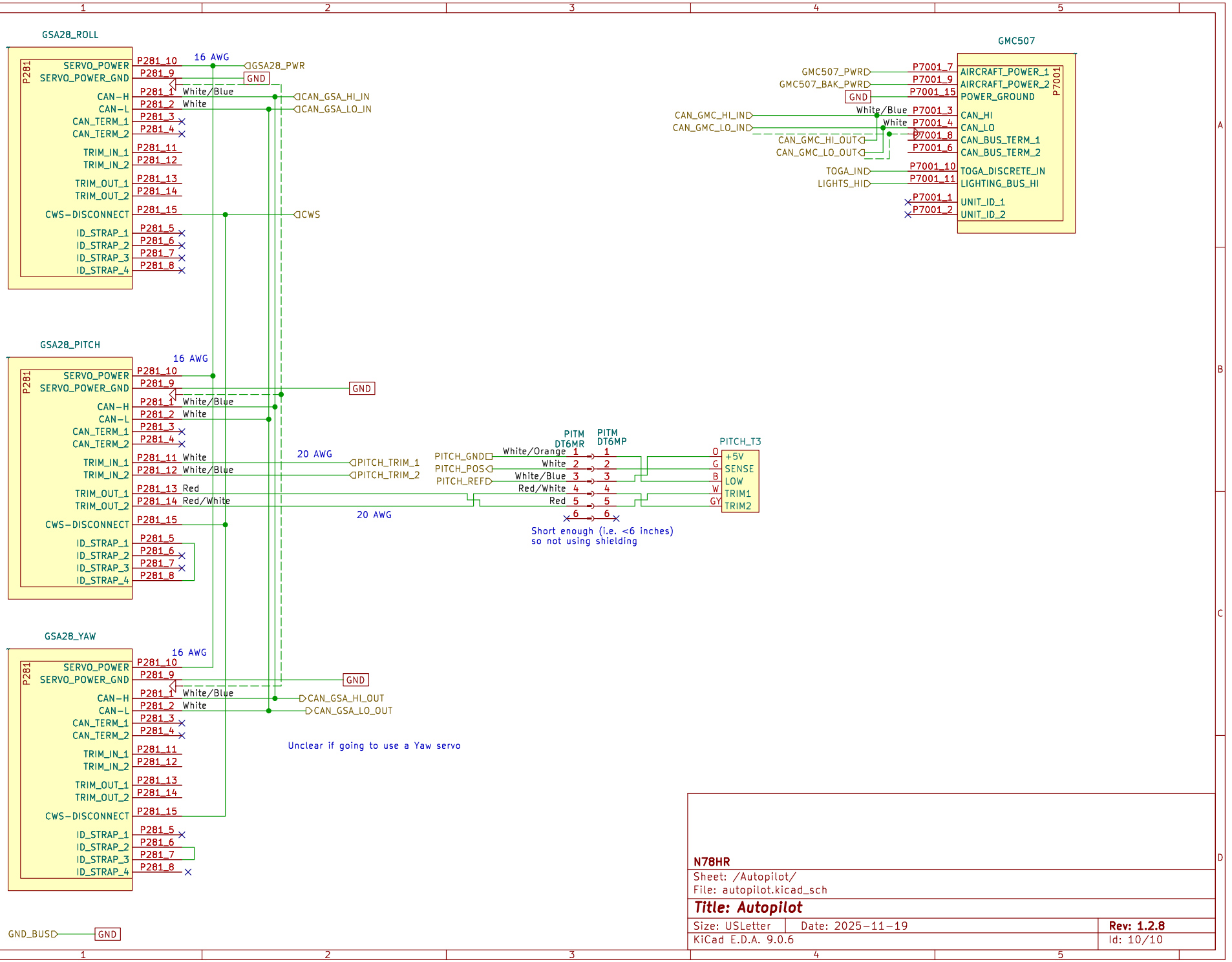
GSA28_ROLL
P281
SERVO_POWER
SERVO_POWER_GND
CAN-H
CAN-L
CAN_TERM_1
CAN_TERM_2
TRIM_IN_1
TRIM_IN_2
TRIM_OUT_1
TRIM_OUT_2
CWS-DISCONNECT
ID_STRAP_1
ID_STRAP_2
ID_STRAP_3
ID_STRAP_4
P281_10
P281_9
P281_1
P281_2
P281_3
P281_4
P281_11
P281_12
P281_13
P281_14
P281_15
P281_5
P281_6
P281_7
P281_8
16 AWG
GSA28_PWR
GND
White/Blue
White
CAN_GSA_HI_IN
CAN_GSA_LO_IN
CWS
GSA28_PITCH
20 AWG
PITCH_TRIM_1
PITCH_TRIM_2
Red
Red/White
PITCH_GND
PITCH_POS
PITCH_REF
PITM DT6MR
PITM DT6MP
White/Orange
Red/White
Red
PITCH_T3
+5V SENSE
LOW
TRIM1
TRIM2
Short enough (i.e. <6 inches) so not using shielding
GSA28_YAW
CAN_GSA_HI_OUT
CAN_GSA_LO_OUT
Unclear if going to use a Yaw servo
GMC507
GMC507_PWR
GMC507_BAK_PWR
CAN_GMC_HI_IN
CAN_GMC_LO_IN
CAN_GMC_HI_OUT
CAN_GMC_LO_OUT
TOGA_IN
LIGHTS_HI
P7001
AIRCRAFT_POWER_1
AIRCRAFT_POWER_2
POWER_GROUND
CAN_HI
CAN_LO
CAN_BUS_TERM_1
CAN_BUS_TERM_2
TOGA_DISCRETE_IN
LIGHTING_BUS_HI
UNIT_ID_1
UNIT_ID_2
GND_BUS
N78HR
Sheet: /Autopilot/
File: autopilot.kicad_sch
Title: Autopilot
Size: USLetter
Date: 2025-11-19
Rev: 1.2.8
KiCad E.D.A. 9.0.6
Id: 10/10