

TPS-28D Manual

Date: 3/3/2020 / Revision 1

SPECIFICATIONS FOR SYSTEM OPERATION

Input Voltage Operation: 19 - 32 VDC Standard / 55 Volts Absolute Max. **Cat. B (DO-160 Commercial Aircraft)**

Input Voltage Operation: 19 - 32 VDC Standard / 80 Volts Absolute Max. **Cat. Z (DO-160 Military Aircraft)**

Fixed Voltages: Output VDC 5 / 14 / 28 *

Adjustable Voltages: Output VDC 0-5 / 0-14 / 0-28 *

Input tracking Voltages-(Output voltages)

0-5 Vdc tracking for (0-5 / 0-14 / 0-28) *

0-14Vdc tracking for (0-5 / 0-14 / 0-28) *

0-28 Vdc tracking for (0-5 / 0-14 / 0-28) *

VAC tracking input - (Output voltages from other dimming power source / AC Lights)

0-115 Vac Input for DC Output (0-5 / 0-14 / 0-28)

0 - 5 Vac Input for DC Output (0-5 / 0-14 / 0-28) (Special Install with added parts)

Other Features

Half bright Day / Night switch (switchable) Optional for install.

Over Voltage FAILSAFE protection (programmable) 5 or 14 volts (optional use)

Soft-Start Voltage (adds extra life to your lights)

5.0 Amp. Continuous Output (max. standard) for TPS-28D-10B call factory for other options

7.0 Amp. Continuous Output (max. high power) for TPS-28D-14B call factory for other options

Universal programmable connector (25 pin D) Crimp type #18 GA pins for cable

Multi-Dimmer tracking (from a single source)

Internal Fused at 12.0 AMPS (max. standard)

DC Tracking with noise immunity to radio signals

AC tracking voltage 0 - 115 VAC

Tracking frequency Volt AC Input 60-1000 HZ

Temperature Range -20 to +70 Degrees C

Installation manual for 18 different configurations (PDF)

Short circuit fold-back protection (max. time 30 sec.) before the internal fuse blows.

Includes Postronics D type 25 pin mating connector and cover (connector designed for secure aircraft use)

Maximum wire size 18 GA Wire Crimp Pins type matting connectors D-Type with Slide Latch

TPS-28D comes in a solid aluminum casting

Four large mounting holes (DIA. 0.190)

Weight 1 LB.

Size (including mounting ears) High 1.75 x Length 5.45 x Width 3.25 inches. TPS-28D size only

WARRANTY: The TPS-28 comes with a one year limited warrant

Basic Operation:

The TPS-28 is a switching power supply. Because it's a switching supply it runs cooler and uses less power than normal lighting supplies. The unit is programmed, by a connector, to your correct voltage and options. The connector supplies both the input and output voltages to run the unit and your lighting. The tracking feature, one of several unique features, allows you to tie the output of an existing lighting system to the units tracking input feature. This allows the TPS-28 to track the other Lighting power supplies. The TPS-28 can be run in a fixed voltage operation, adjustable voltage operation, or tracking voltage operation. The unit has a selectable over-voltage protection option, insuring that your lighting will never be burnt out by over-voltage. Short circuit protection is also provided: if a wire should short for several seconds, the unit goes into a fold-back mode allowing the unit to shut down and then restart. If for some reason the short lasts for several minutes, the unit is designed to blow the fuse thereby abating the chance of a fire. The unit also has a PWM fail circuit: if for some reason the voltage controlling circuit fails the unit is designed to go into a shut off mode. The TPS-28 has a special feedback loop designed to run instrument lighting and does not have instantaneous voltage changes. This helps to eliminate those flickers and flashes when an engine changes it's output RPM.

Tracking voltage, what it is and how it works.

When you need to have the TPS-28 adjust its output voltage to follow another supply voltage, you need to use the tracking input of the TPS-28. The tracking input tells the TPS-28 how much voltage it should be putting out in proportion to the other lighting power supply. This works for both fixed and variable lighting supplies. You will need to select the proper range for the TPS-28 to run your application. We have supplied all the standard configurations of most lighting systems that you will need. The unit also has an AC tracking input of 0-90 Volts that allows 60 - 1000 Hz to be applied to the unit. This allows the DC lighting to be adjusted to an AC lighting circuit.

Dimmer switch, and what it does.

The half bright dimmer switch is designed to work with any voltage or mode of operation. When the switch is in the on position this will dim the lights that are attached to the TPS-28 to half their brightness.

Dimmer pot resistor, and what it is used for.

When you are not using a fixed voltage output, or a tracking voltage output, you will want to use a variable output for the TPS-28 lighting supply. The output of the supply can be adjusted by a variable 1K pot from 0 volts to the maximum voltage that you have selected for the TPS-28 supply. The 1K variable resistor can be of any power value. The 5 volt reference is used to adjust the TPS-28 supply feed back loop that controls the output voltage.

Over voltage fail-safe operation.

There are two over voltage modes that are supplied with the TPS-28. Select the over voltage level that coincides with your voltage. For maximum lighting protection, combine this option with any of the others.

What the TPS-28 will do for you:

The Incandescent lighting controller is designed to provide long life for your lights, with flexibility for almost every lighting situation that you will run into. Almost any D.C. Lighting can be run with the TPS-28. The supply has a soft-start mode that protects the filaments from those quick voltage jumps by allowing a ramped-voltage rise when the unit is turned on, thereby extending the life of the bulbs. In addition, you can add a day/night dimming switch that allows you, in any brightness condition, to instantly dim the light(s) to half their brightness. This feature was added for those cloudy, moonlit nights when the lighting intensity fluctuates. It enhances your visibility to see in the outside world.

Product Data Sheet:

Technical notes for the TPS-28 (all specification are for maximum power)

1. The unit has a 1.70 volt drop from input to output at or below the voltage of 28 VDC input. This is because of its switching blocking design of the supply. However with a 30+ volts input, the output will never go above 28 volts if the unit is set to a 28 volt output range. At 0 volts the unit output will be no more than 0.25 VDC.
2. The unit should always be well grounded to a flat metal surface to help eliminate heat and provide good regulation.
3. Keep transmitter / receiver wires away from the unit. This will help eliminate any interference the unit may generate.
4. If the unit is connected to a circuit breaker it should be of the 7 to 10 AMP (TPS-28D) / 15 to 20 AMP(TPS-28D) type designed for use with 28 volts.
5. The TPS-28 can be used down to 12 volts but will never put out more voltage than it's input has. (reduced current output)*
6. Non-standard output voltages can be obtained, you must consult the factory for correct wiring.
7. Tracking error will typically not exceed 6.0% with a stable input source.
8. Dimmer switch: output voltage will be typically 50% of what the output voltage was when applied.
9. Dimmer switch line current will not exceed 5 ma.
10. Dimmer switch line voltage will not exceed 6 volts.
11. Tracking input line current will not exceed 10 ma.
12. When using the unit as an adjustable output, you should always use a 1K pot. You may use one Pot to adjust **more** than one TPS-28 at one time.
13. Pin 20, max. current is 10ma.
14. Pin's 1- 4, max. current 4.0 Amps each.
15. Pin's 11,12,24,25, Max. current 4.0 Amps each.
16. Pin 14 input current Max. less than 1ma.
17. Never connect the outputs of a TPS-28 to another TPS-28, the units **DO NOT** current share. You may connect the output of one TPS-28 to the tracking input of another TPS-28.
18. When using more than one TPS-28 with a half bright dimming switch: always use isolation diodes or use a separate switch contact for each circuit to ground.

Product Data Sheet:

19. The PWM's under voltage circuit will not let the unit operate until the input voltage reaches at least 10 VDC.
20. If the unit goes into over voltage it is designed to blow the fuse in the TPS-28.
21. Connector style is a 25pin "D" female / solder cup / slide-lock type for the connecting power cable.
22. There are four mount holes in the TPS-28's two flanges, holes are 0.190 DIA.
23. Never paint the TPS-28 housing. This will cause the heat transfer to be lessened.
24. The TPS-28 can be used to run LED's, Wheat grain bulbs, Quartz lighting, Tungsten filament lighting.
25. Maximum output current see (Table for Unit type continuous output current) at any output voltage selected.

DO-160 Data Sheet:

The TPS-28D was designed to meet all required DO-160 specifications for a power supply for the FAA to be air worthy on an aircraft in normal operations. Please note that there are no open TSO's by the FAA for DC power supplies for any kind of certification. Your local FAA inspector may require you do an EMI test for the air frame type you are installing the unit in.

FAA Data:

The TPS-28 is registered with the FAA office in Atlanta Georgia for its design, engineering and production quality.

Production Materials Data:

Currently the TPS-28D uses through hole technology with 60/40 lead solder. There are no SMT parts at all in the TPS-28D. We do not use lead free solder in the TPS-28D at all. This allows us to produce the best electrical connections for all circuits.

Executive Engineering / Information:

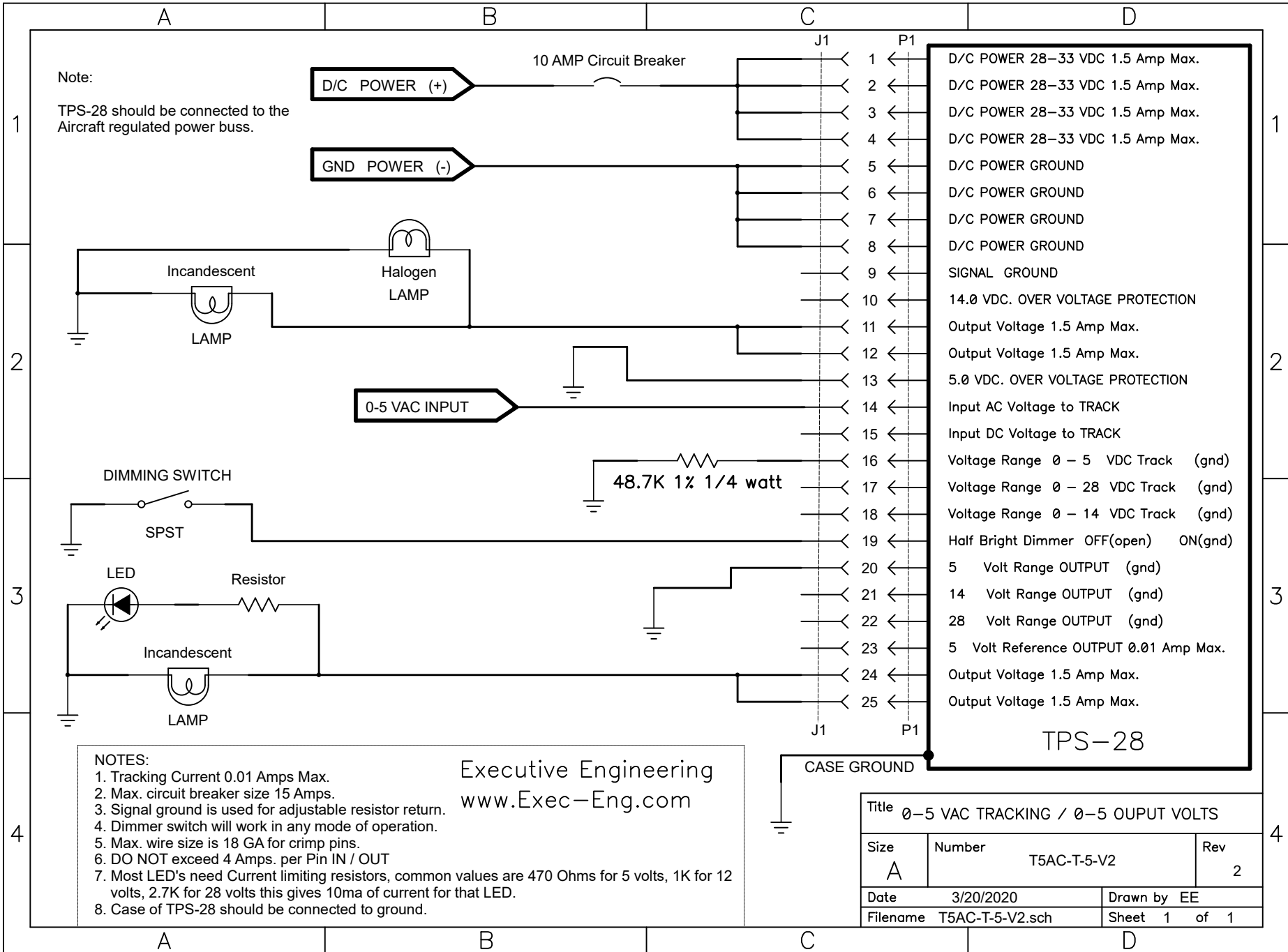
WEB SITE: www.EXEC-ENG.com

What 5 Volt AC Tracking Schematic should I use with the TPS-28D..?

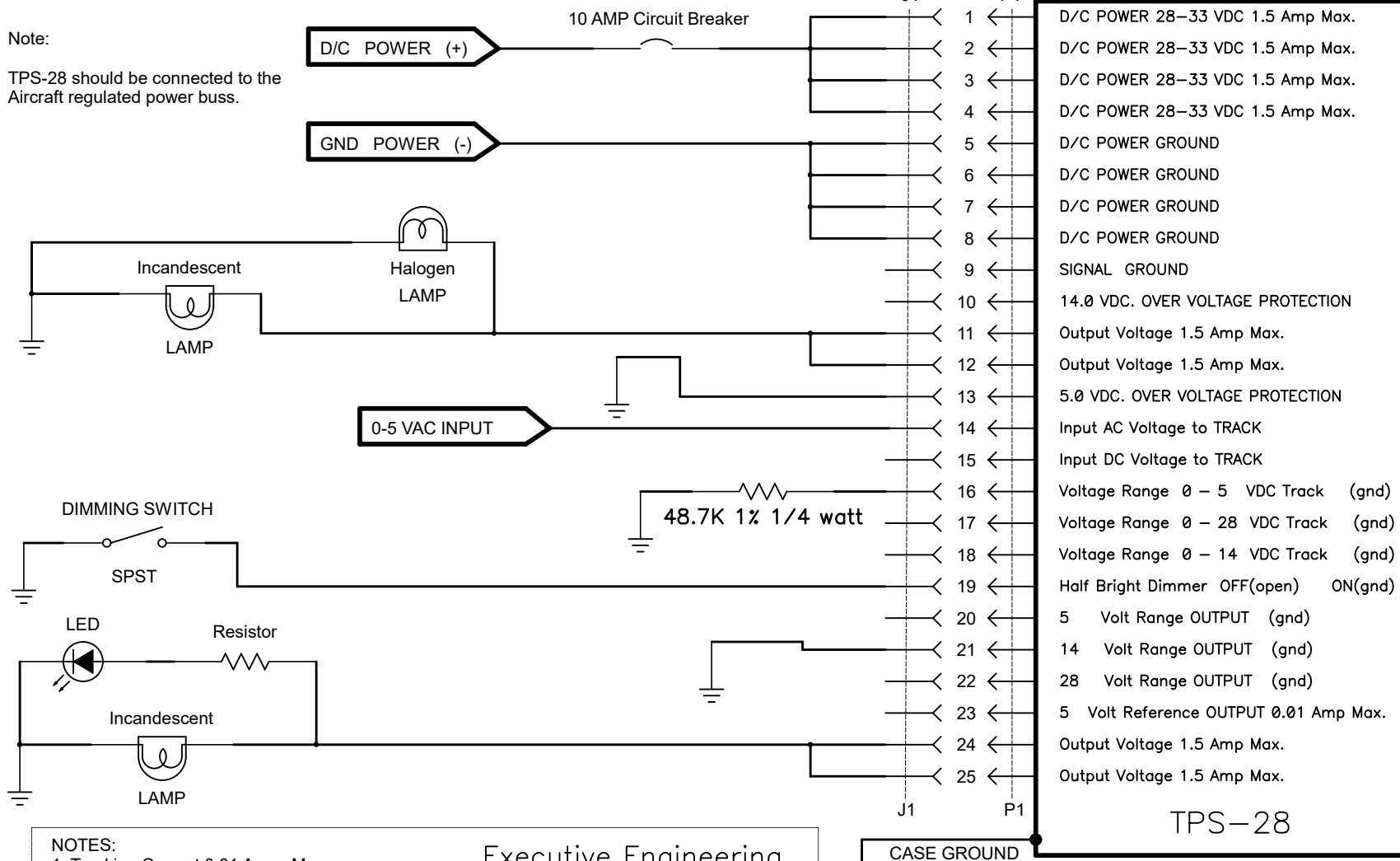
This depends on how accurate you want to track your AC 5 Volts on the low end of the dimming. If your using Night Vision Equipment then you should be using schematic number (**T5AC-T-5**) (**T5AC-T-14**) (**T5AC-T-28**) The T1 transformer acts as an amplified voltage to the TPS-28 and extends the range of tracking of the 5 Volts AC in the sampling circuits in the TPS-28. This give you much better tracking on the lower end of the dimmer voltage.

If your just looking for Tracking 5 Volts AC and you don't care about the lower 10% of the dimming range then schematic (**T5AC-T-5-V2**) (**T5AC-T-14-V2**) (**T5AC-T-28-V2**) will work for your needs. The TPS-28D will track the 5 Volts AC down very well until about the lower 10% of the 5 Volts AC and then the tracking becomes none linear. For some customer this is fine because they never dim the lamps to almost off and they don't use Night Vision Equipment in their aircraft.

If you have any question feel free to contact Executive Engineering.



Note:
TPS-28 should be connected to the Aircraft regulated power buss.



1	D/C POWER 28-33 VDC 1.5 Amp Max.
2	D/C POWER 28-33 VDC 1.5 Amp Max.
3	D/C POWER 28-33 VDC 1.5 Amp Max.
4	D/C POWER 28-33 VDC 1.5 Amp Max.
5	D/C POWER GROUND
6	D/C POWER GROUND
7	D/C POWER GROUND
8	D/C POWER GROUND
9	SIGNAL GROUND
10	14.0 VDC. OVER VOLTAGE PROTECTION
11	Output Voltage 1.5 Amp Max.
12	Output Voltage 1.5 Amp Max.
13	5.0 VDC. OVER VOLTAGE PROTECTION
14	Input AC Voltage to TRACK
15	Input DC Voltage to TRACK
16	Voltage Range 0 - 5 VDC Track (gnd)
17	Voltage Range 0 - 28 VDC Track (gnd)
18	Voltage Range 0 - 14 VDC Track (gnd)
19	Half Bright Dimmer OFF(open) ON(gnd)
20	5 Volt Range OUTPUT (gnd)
21	14 Volt Range OUTPUT (gnd)
22	28 Volt Range OUTPUT (gnd)
23	5 Volt Reference OUTPUT 0.01 Amp Max.
24	Output Voltage 1.5 Amp Max.
25	Output Voltage 1.5 Amp Max.

TPS-28

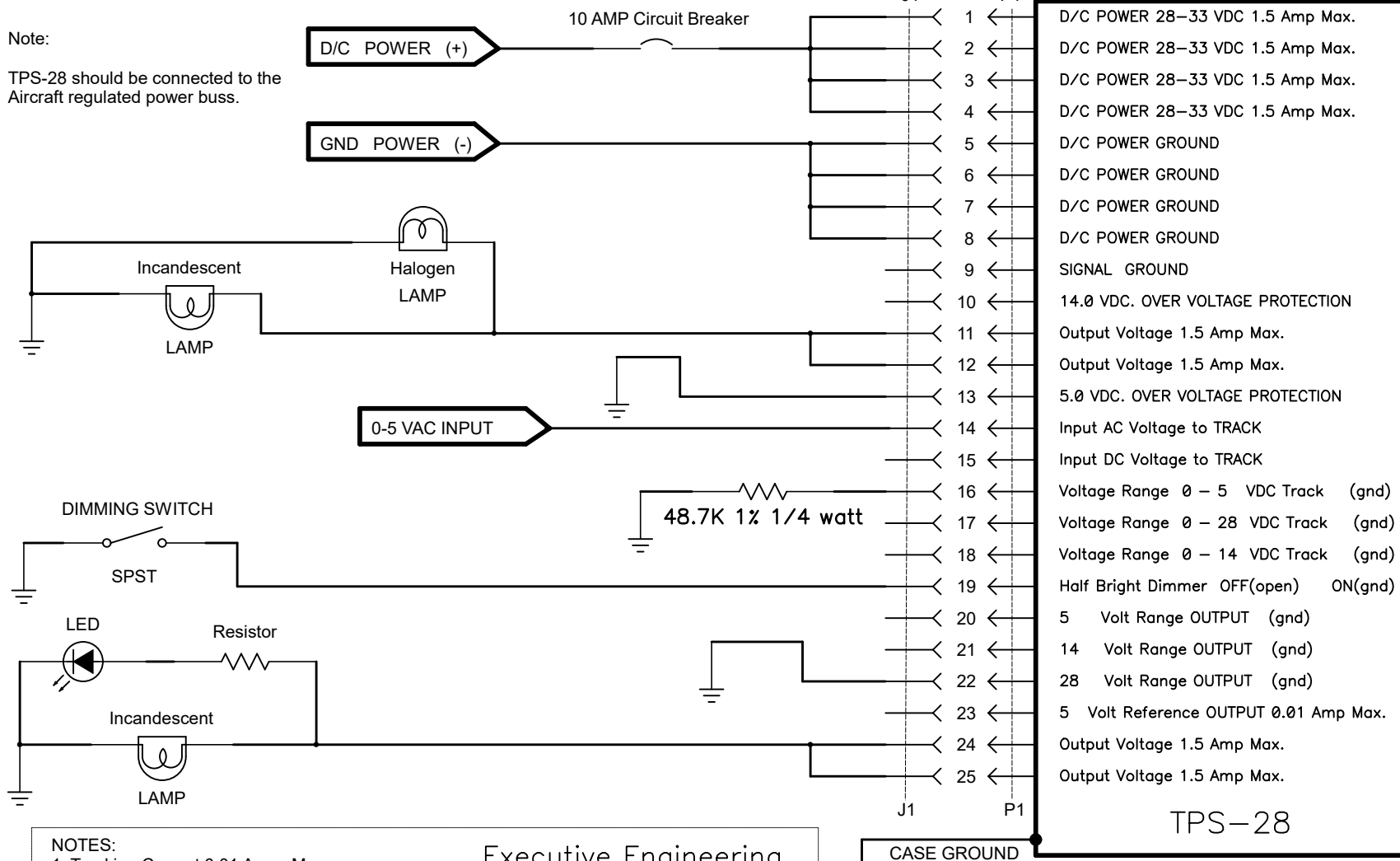
NOTES:

1. Tracking Current 0.01 Amps Max.
2. Max. circuit breaker size 15 Amps.
3. Signal ground is used for adjustable resistor return.
4. Dimmer switch will work in any mode of operation.
5. Max. wire size is 18 GA for crimp pins.
6. DO NOT exceed 4 Amps. per Pin IN / OUT
7. Most LED's need Current limiting resistors, common values are 470 Ohms for 5 volts, 1K for 12 volts, 2.7K for 28 volts this gives 10ma of current for that LED.
8. Case of TPS-28 should be connected to ground.

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Title 0-5 VAC TRACKING / 0-14 OUPUT VOLTS		
Size A	Number T5AC-T-14-V2	Rev 2
Date 3/20/2020	Drawn by EE	
Filename T5AC-T-14-V2.sch	Sheet 1 of 1	

Note:
TPS-28 should be connected to the Aircraft regulated power buss.



1	←	D/C POWER 28-33 VDC 1.5 Amp Max.
2	←	D/C POWER 28-33 VDC 1.5 Amp Max.
3	←	D/C POWER 28-33 VDC 1.5 Amp Max.
4	←	D/C POWER 28-33 VDC 1.5 Amp Max.
5	←	D/C POWER GROUND
6	←	D/C POWER GROUND
7	←	D/C POWER GROUND
8	←	D/C POWER GROUND
9	←	SIGNAL GROUND
10	←	14.0 VDC. OVER VOLTAGE PROTECTION
11	←	Output Voltage 1.5 Amp Max.
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13	←	5.0 VDC. OVER VOLTAGE PROTECTION
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16	←	Voltage Range 0 - 5 VDC Track (gnd)
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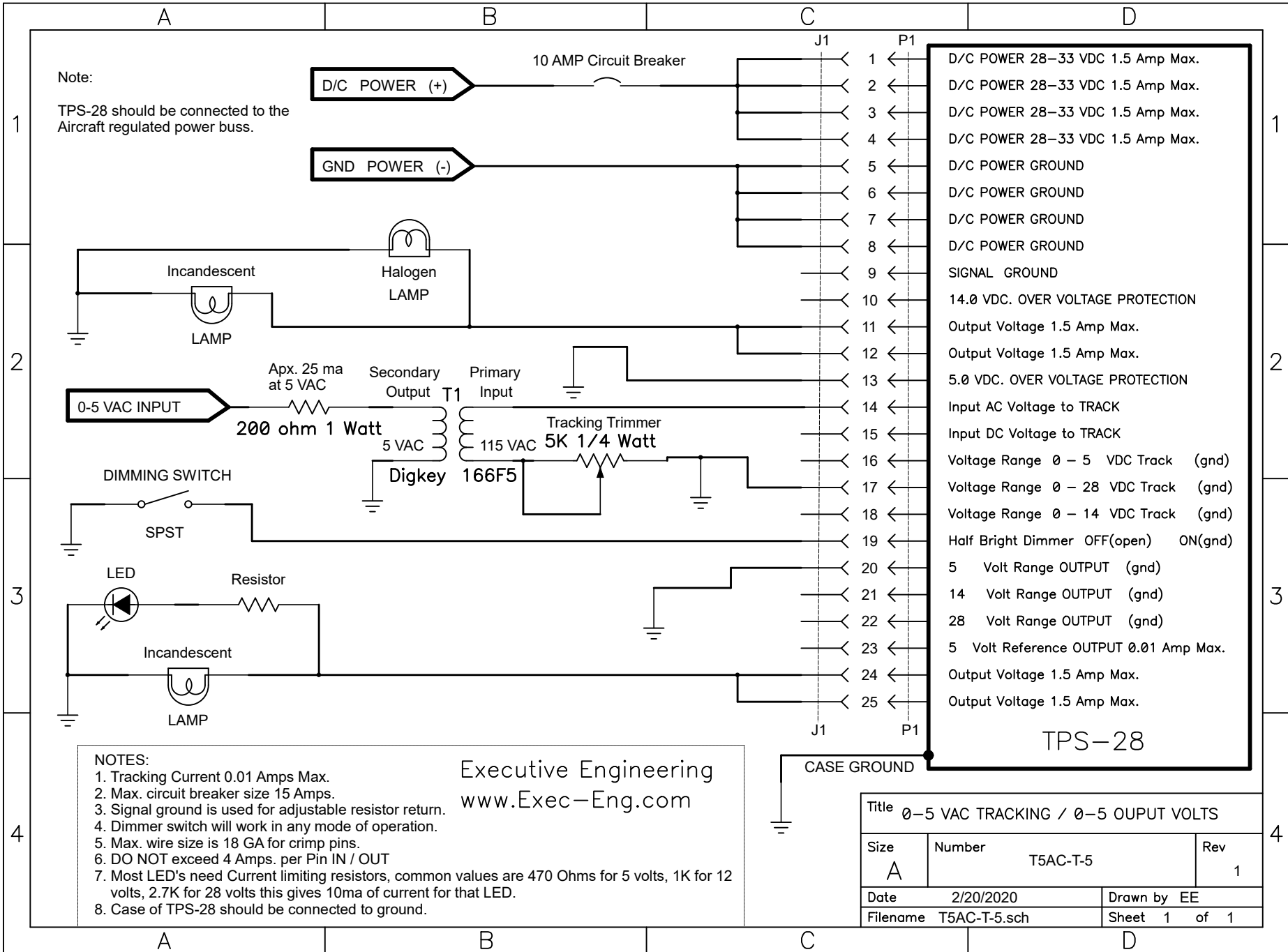
TPS-28

CASE GROUND

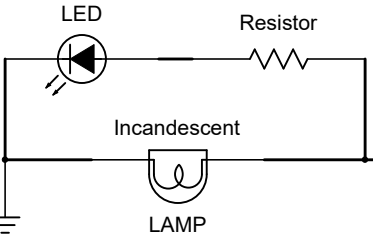
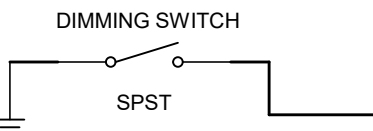
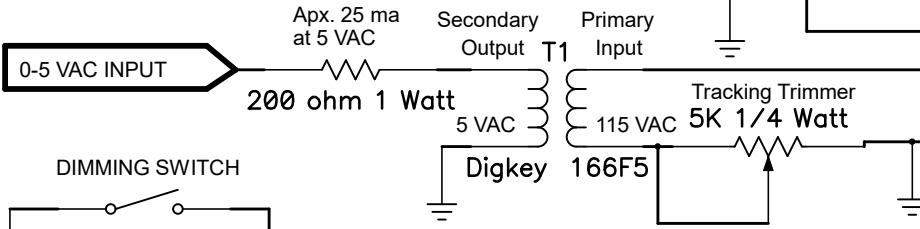
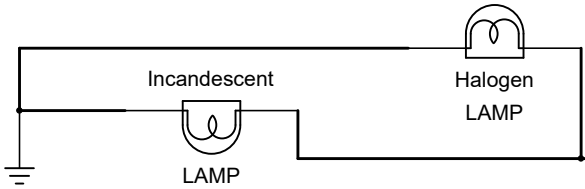
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 8. Case of TPS-28 should be connected to ground.

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Title 0-5 VAC TRACKING / 0-28 OUPUT VOLTS		
Size A	Number T5AC-T-28-V2	Rev 2
Date 3/20/2020	Drawn by EE	
Filename T5AC-T-28-V2.sch	Sheet 1 of 1	



Note:
TPS-28 should be connected to the Aircraft regulated power buss.

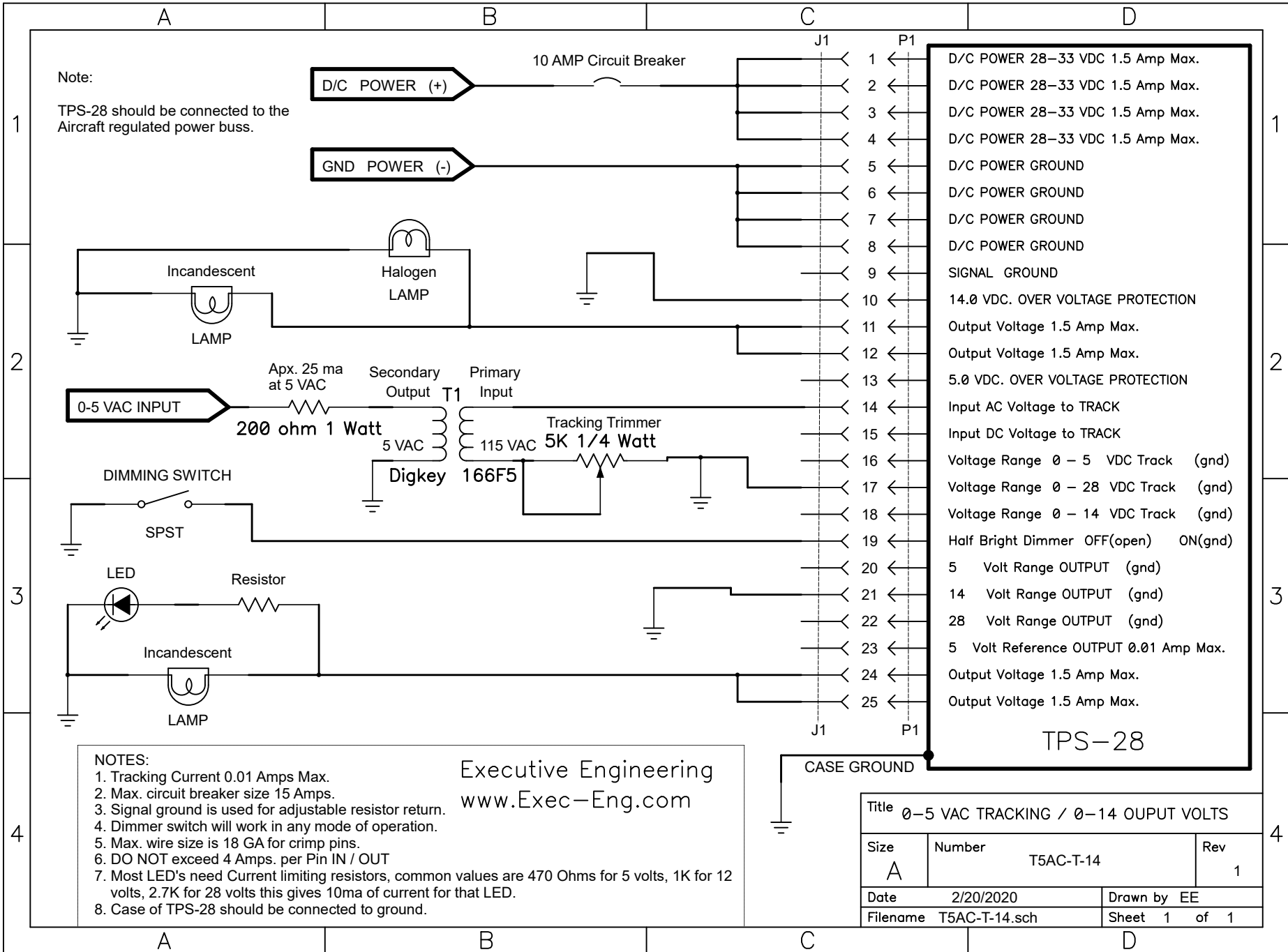


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1	←	D/C POWER 28-33 VDC 1.5 Amp Max.
2	←	D/C POWER 28-33 VDC 1.5 Amp Max.
3	←	D/C POWER 28-33 VDC 1.5 Amp Max.
4	←	D/C POWER 28-33 VDC 1.5 Amp Max.
5	←	D/C POWER GROUND
6	←	D/C POWER GROUND
7	←	D/C POWER GROUND
8	←	D/C POWER GROUND
9	←	SIGNAL GROUND
10	←	14.0 VDC. OVER VOLTAGE PROTECTION
11	←	Output Voltage 1.5 Amp Max.
12	←	Output Voltage 1.5 Amp Max.
13	←	5.0 VDC. OVER VOLTAGE PROTECTION
14	←	Input AC Voltage to TRACK
15	←	Input DC Voltage to TRACK
16	←	Voltage Range 0 - 5 VDC Track (gnd)
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23	←	5 Volt Reference OUTPUT 0.01 Amp Max.
24	←	Output Voltage 1.5 Amp Max.
25	←	Output Voltage 1.5 Amp Max.

Title 0-5 VAC TRACKING / 0-5 OUPUT VOLTS		
Size A	Number T5AC-T-5	Rev 1
Date 2/20/2020	Drawn by EE	
Filename T5AC-T-5.sch	Sheet 1 of 1	



Note:
TPS-28 should be connected to the Aircraft regulated power buss.

1	D/C POWER 28-33 VDC 1.5 Amp Max.
2	D/C POWER 28-33 VDC 1.5 Amp Max.
3	D/C POWER 28-33 VDC 1.5 Amp Max.
4	D/C POWER 28-33 VDC 1.5 Amp Max.
5	D/C POWER GROUND
6	D/C POWER GROUND
7	D/C POWER GROUND
8	D/C POWER GROUND
9	SIGNAL GROUND
10	14.0 VDC. OVER VOLTAGE PROTECTION
11	Output Voltage 1.5 Amp Max.
12	Output Voltage 1.5 Amp Max.
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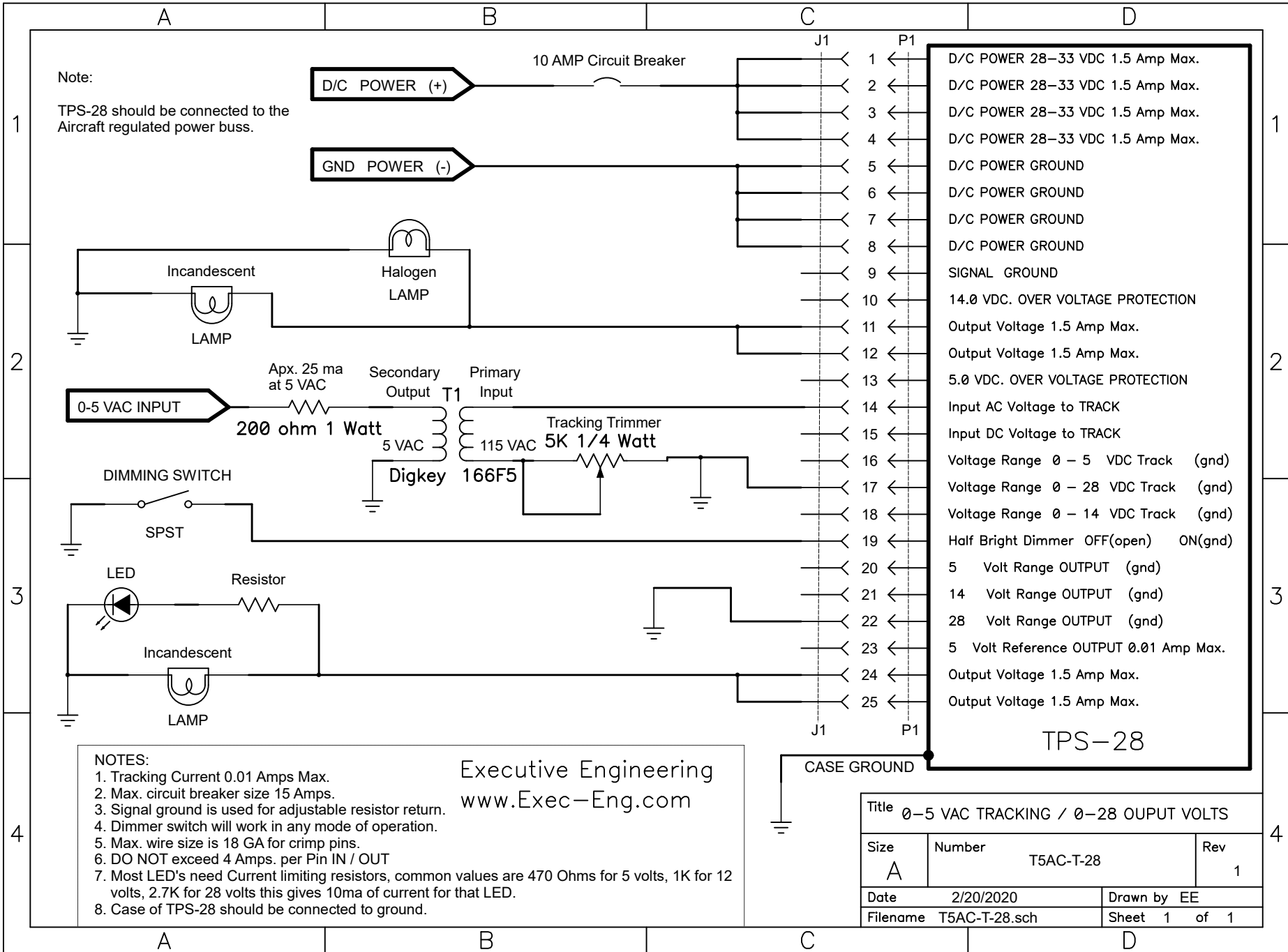
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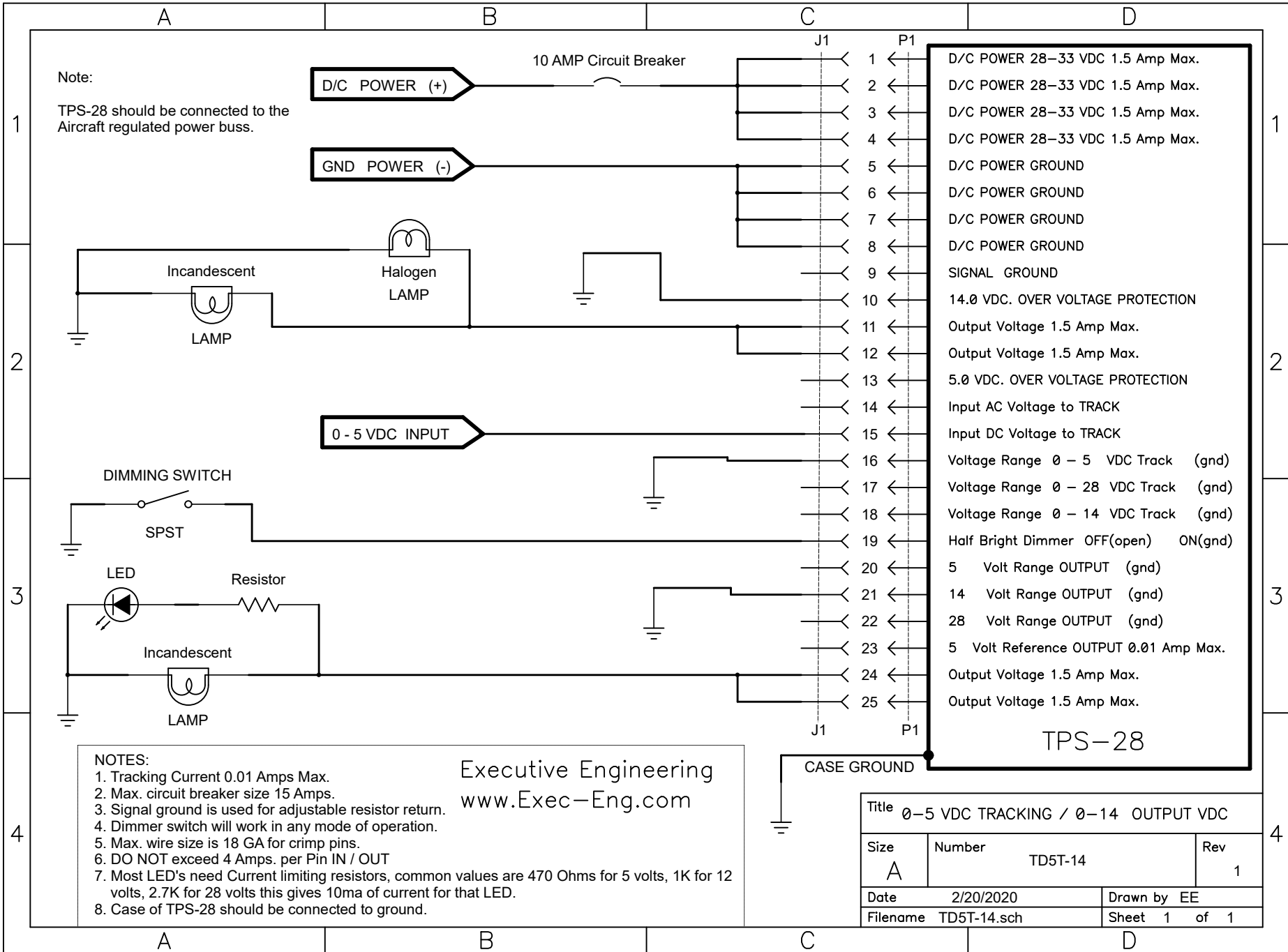
CASE GROUND

- NOTES:
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 7. Most LED's need Current limiting resistors, common values are 470 Ohms for 5 volts, 1K for 12 volts, 2.7K for 28 volts this gives 10ma of current for that LED.
 8. Case of TPS-28 should be connected to ground.

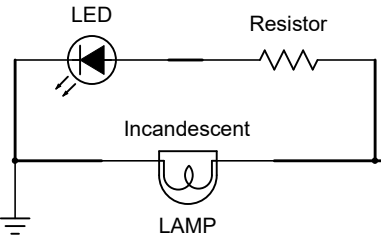
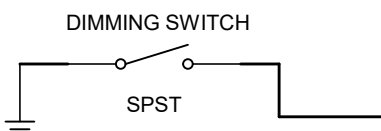
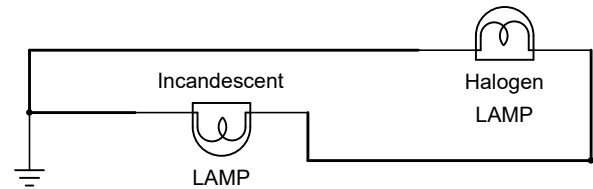
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Title 0-5 VAC TRACKING / 0-14 OUPUT VOLTS		
Size A	Number T5AC-T-14	Rev 1
Date 2/20/2020	Drawn by EE	
Filename T5AC-T-14.sch	Sheet 1 of 1	





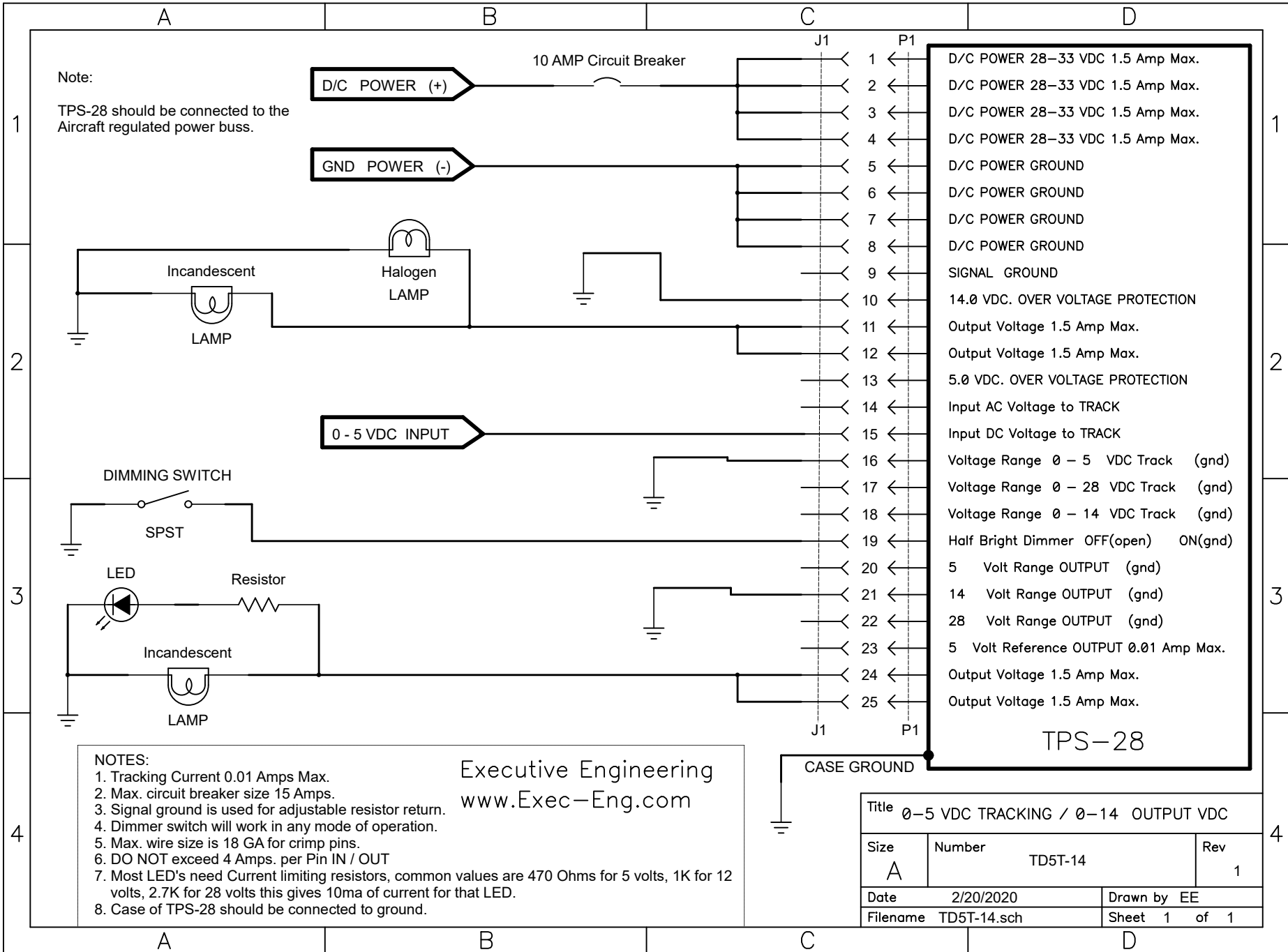
Note:
TPS-28 should be connected to the Aircraft regulated power buss.

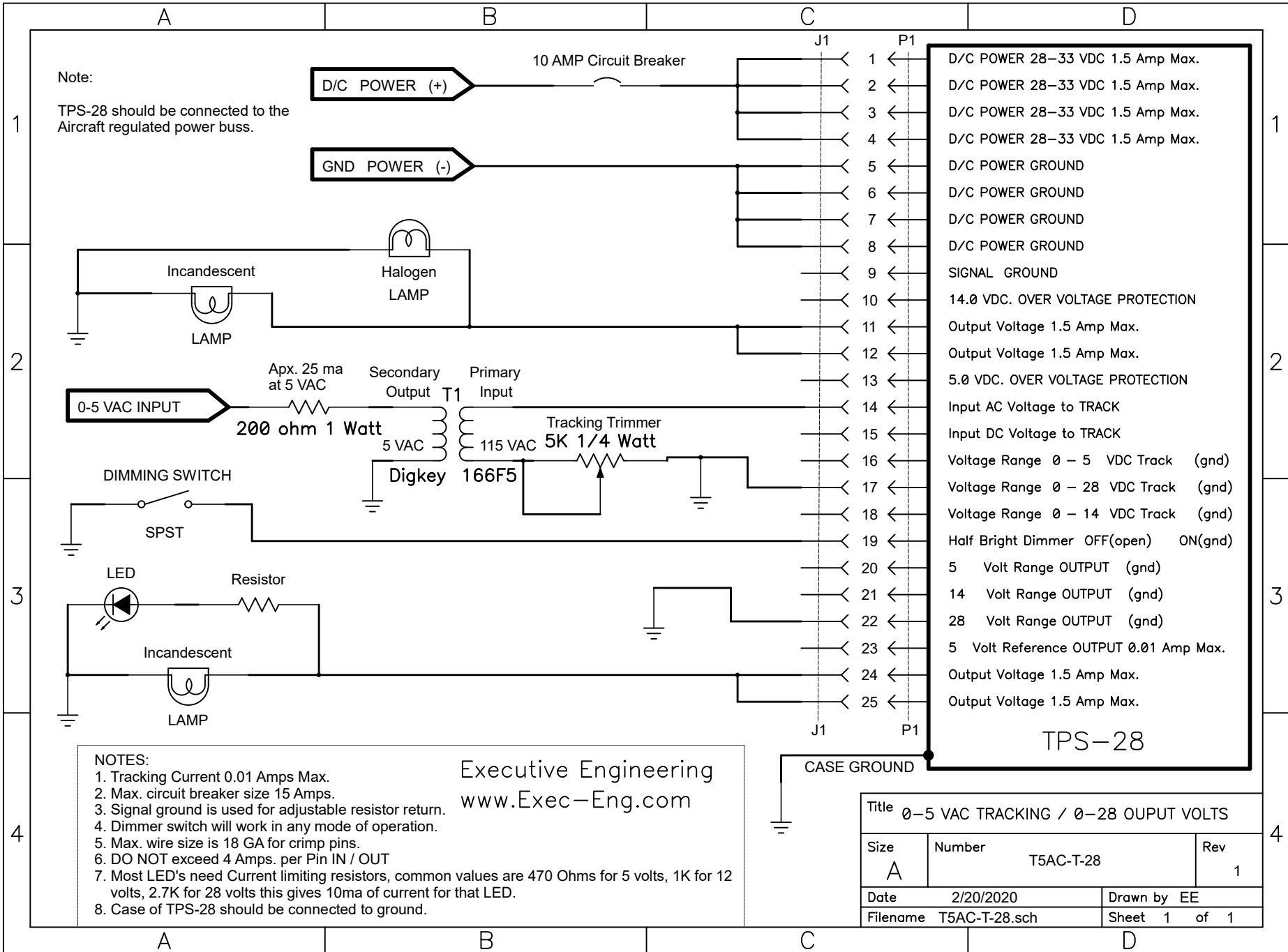


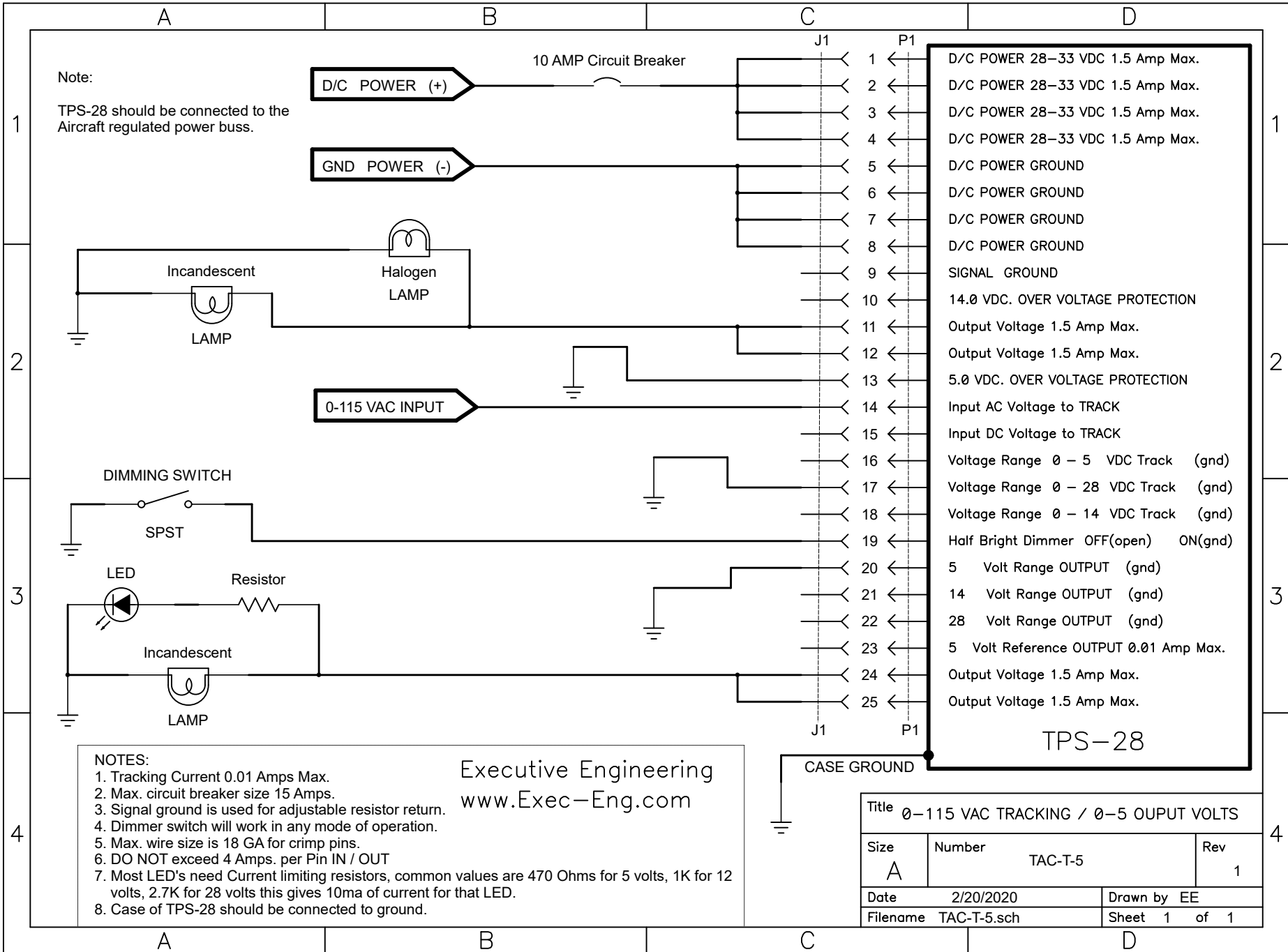
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Title 0-5 VDC TRACKING / 0-14 OUTPUT VDC		
Size A	Number TD5T-14	Rev 1
Date 2/20/2020	Drawn by EE	
Filename TD5T-14.sch	Sheet 1 of 1	







Note:
TPS-28 should be connected to the Aircraft regulated power buss.

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2	D/C POWER 28-33 VDC 1.5 Amp Max.
3	D/C POWER 28-33 VDC 1.5 Amp Max.
4	D/C POWER 28-33 VDC 1.5 Amp Max.
5	D/C POWER GROUND
6	D/C POWER GROUND
7	D/C POWER GROUND
8	D/C POWER GROUND
9	SIGNAL GROUND
10	14.0 VDC. OVER VOLTAGE PROTECTION
11	Output Voltage 1.5 Amp Max.
12	Output Voltage 1.5 Amp Max.
13	5.0 VDC. OVER VOLTAGE PROTECTION
14	Input AC Voltage to TRACK
15	Input DC Voltage to TRACK
16	Voltage Range 0 - 5 VDC Track (gnd)
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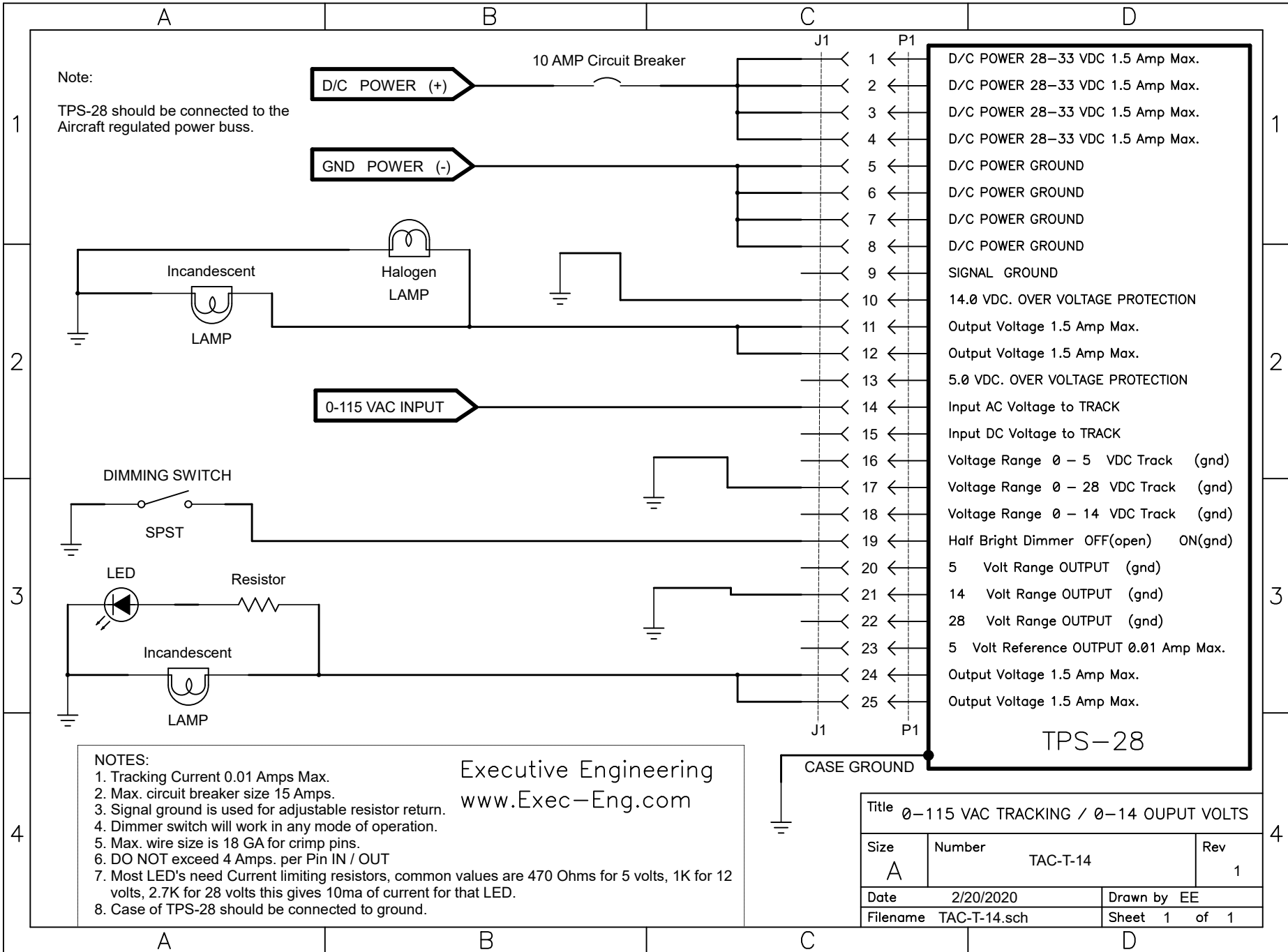
TPS-28

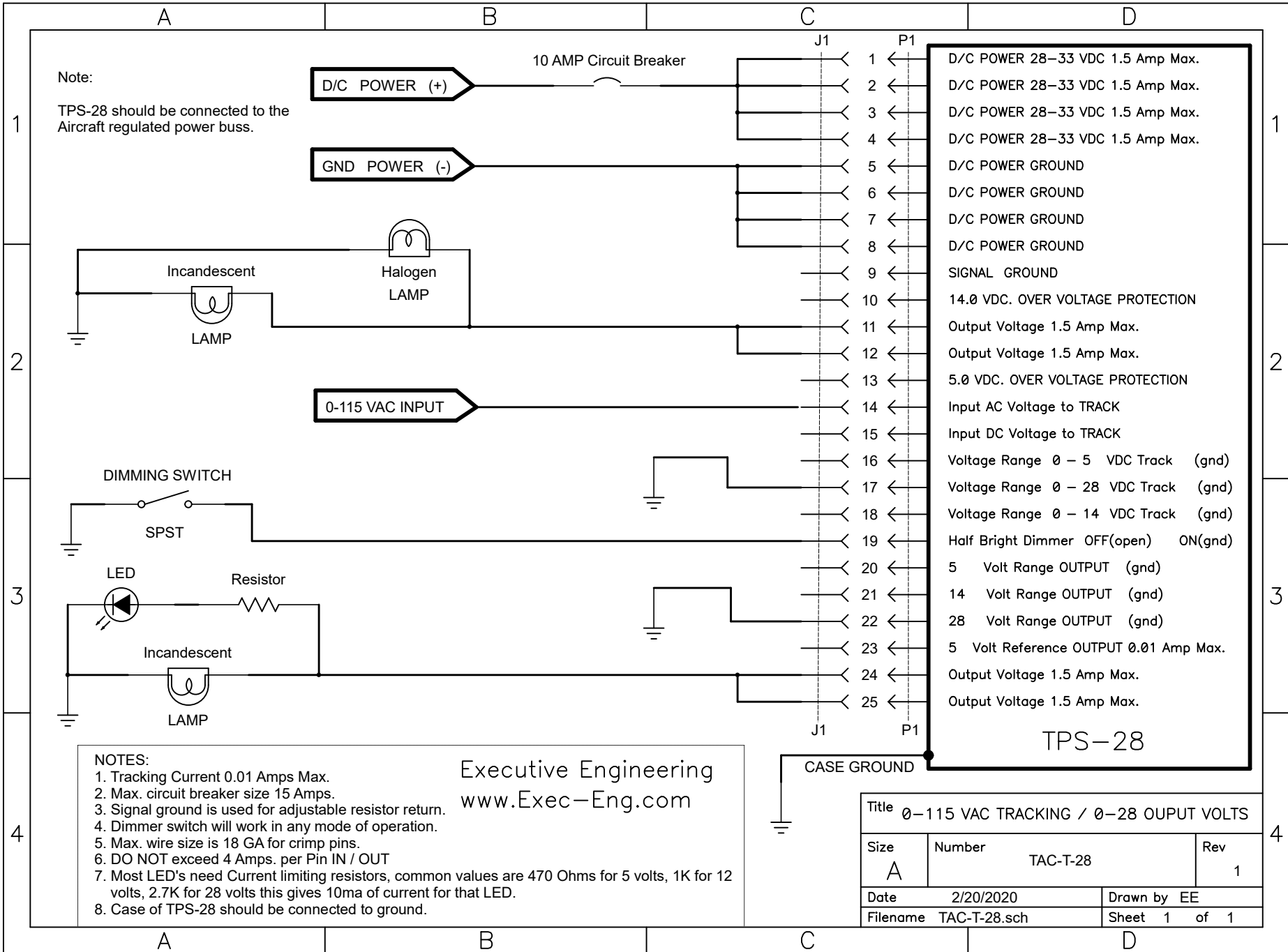
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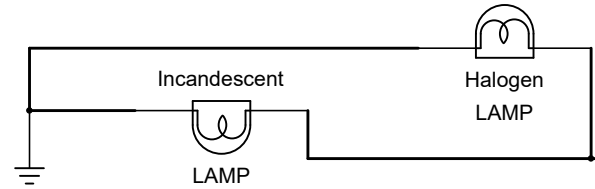
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Title 0-115 VAC TRACKING / 0-5 OUPUT VOLTS			
Size A	Number TAC-T-5	Rev 1	
Date 2/20/2020	Drawn by EE		
Filename TAC-T-5.sch	Sheet 1 of 1		

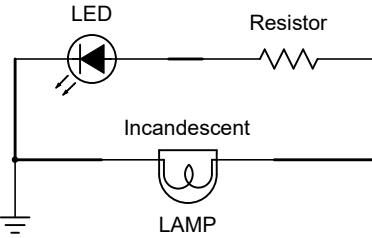
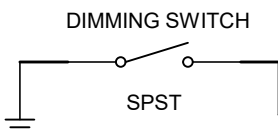




Note:
TPS-28 should be connected to the Aircraft regulated power buss.



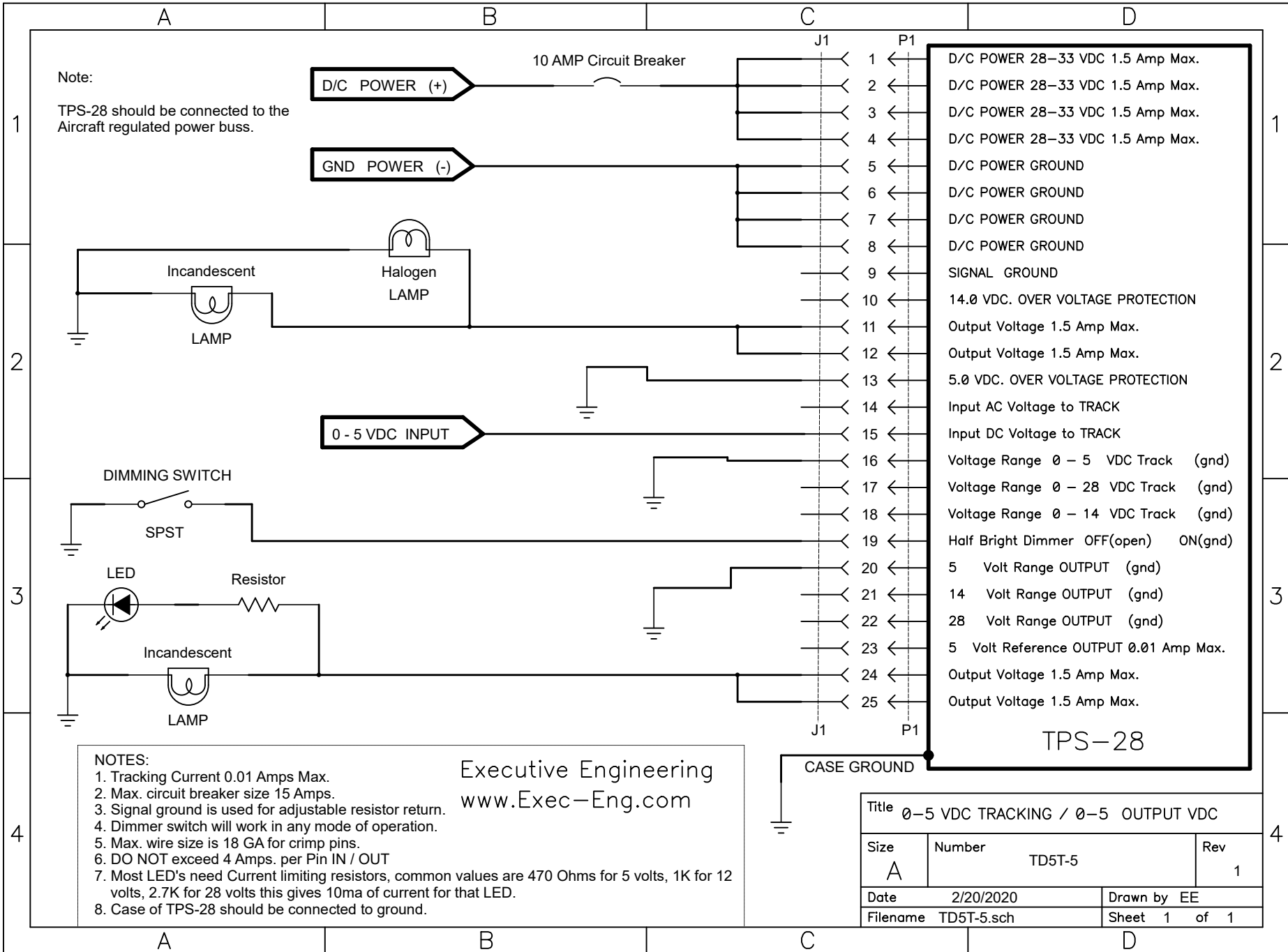
0-115 VAC INPUT

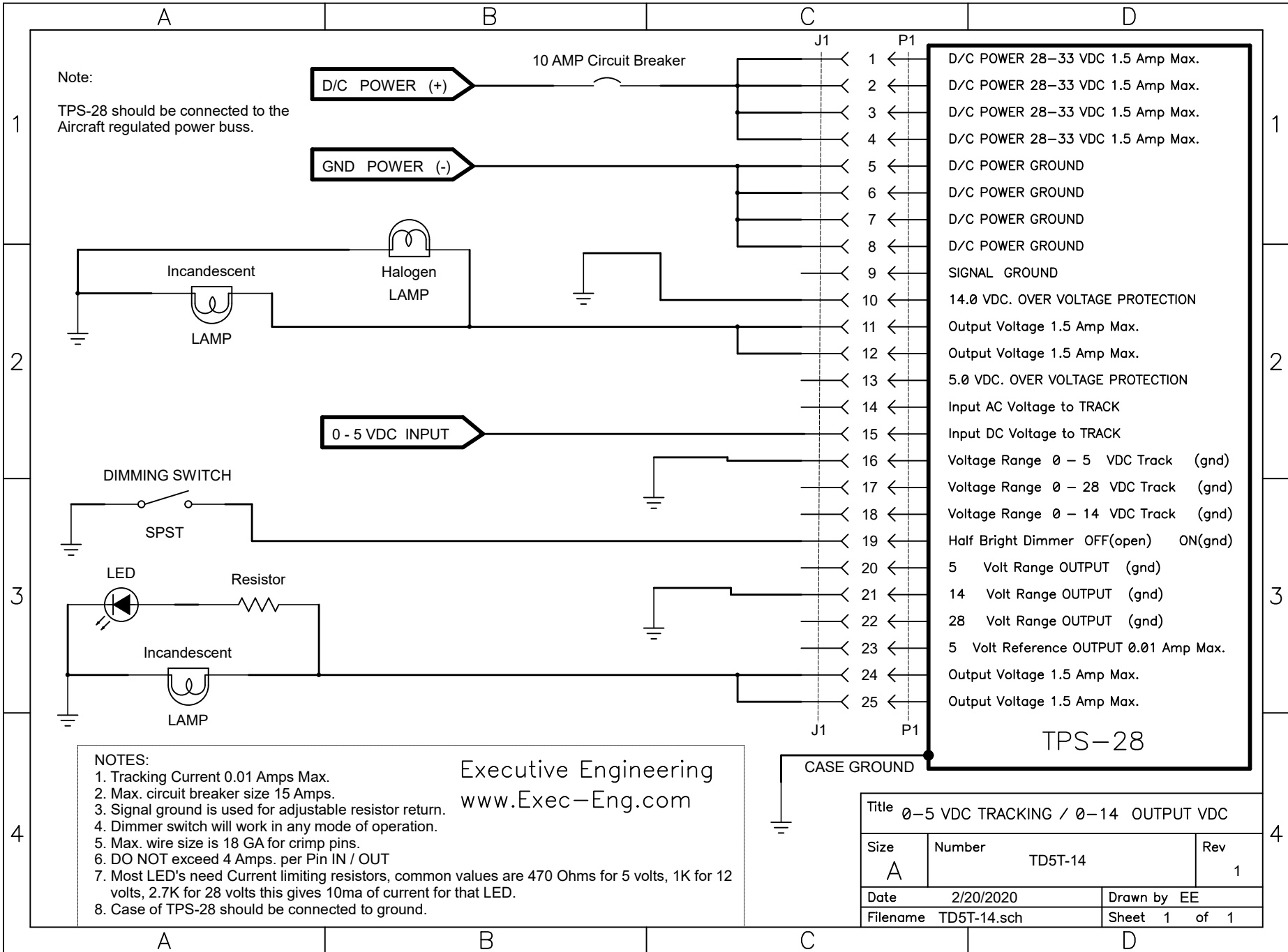


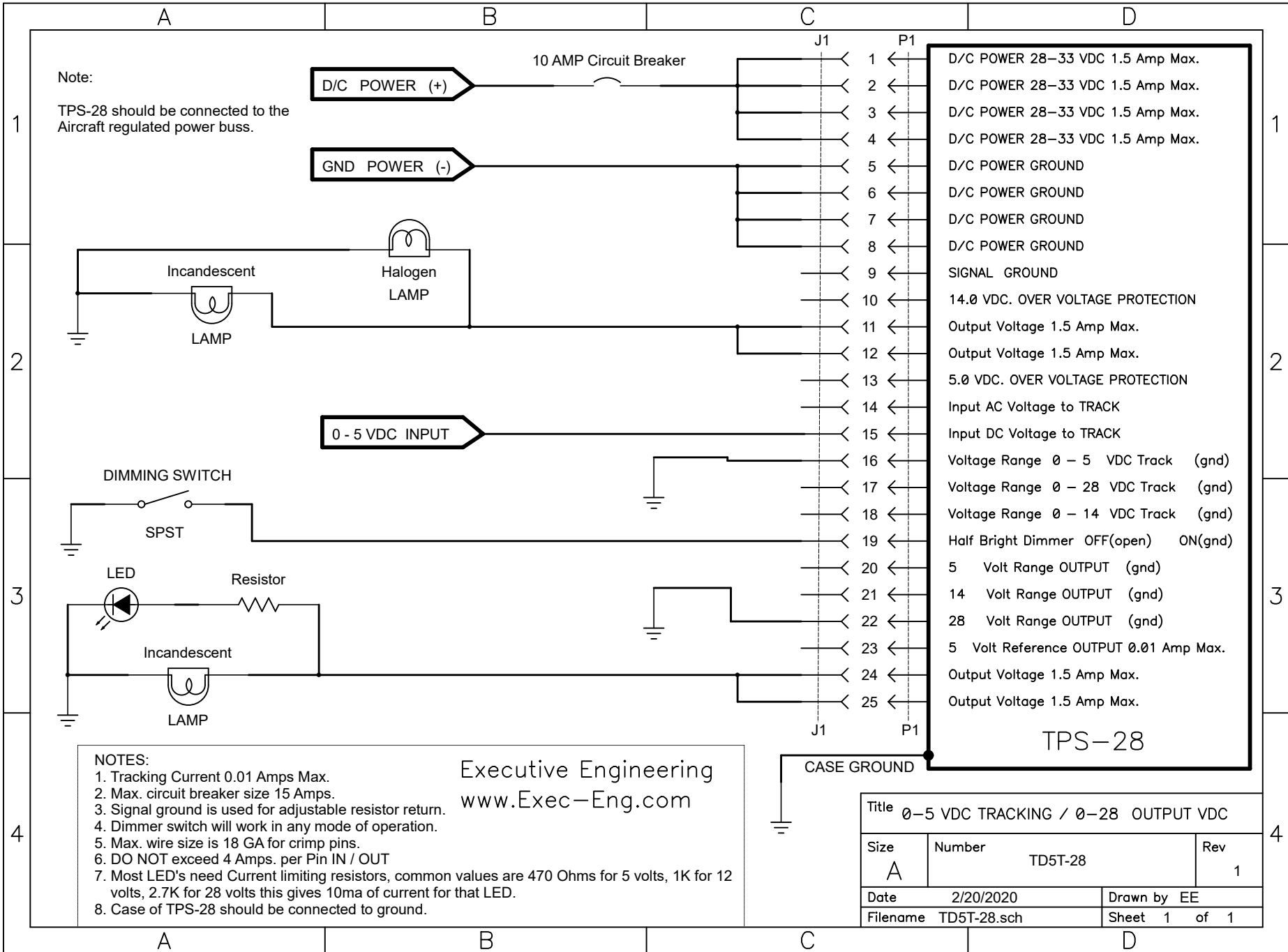
NOTES:
 1. Tracking Current 0.01 Amps Max.
 2. Max. circuit breaker size 15 Amps.
 3. Signal ground is used for adjustable resistor return.
 4. Dimmer switch will work in any mode of operation.
 5. Max. wire size is 18 GA for crimp pins.
 6. DO NOT exceed 4 Amps. per Pin IN / OUT
 7. Most LED's need Current limiting resistors, common values are 470 Ohms for 5 volts, 1K for 12 volts, 2.7K for 28 volts this gives 10ma of current for that LED.
 8. Case of TPS-28 should be connected to ground.

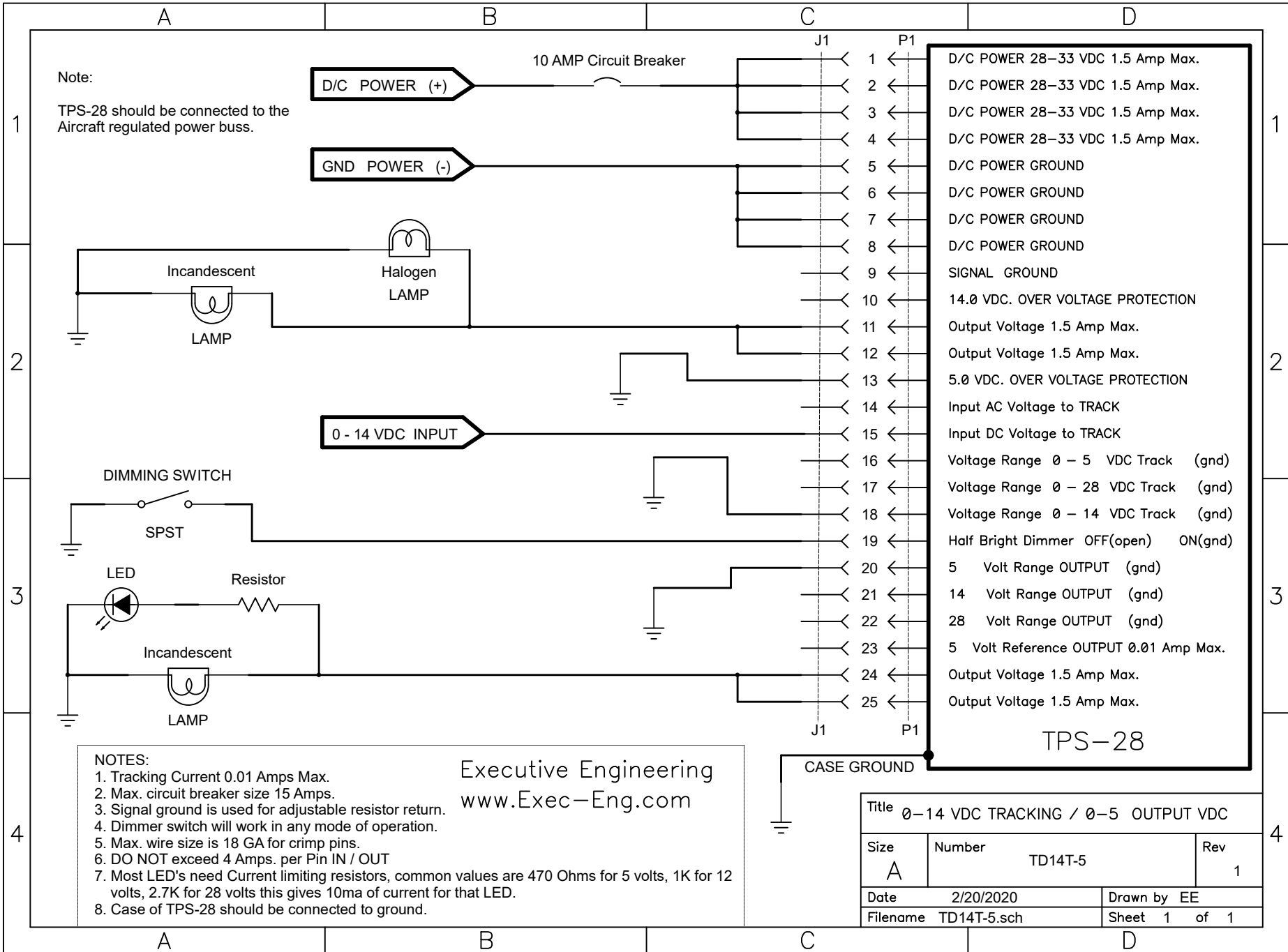
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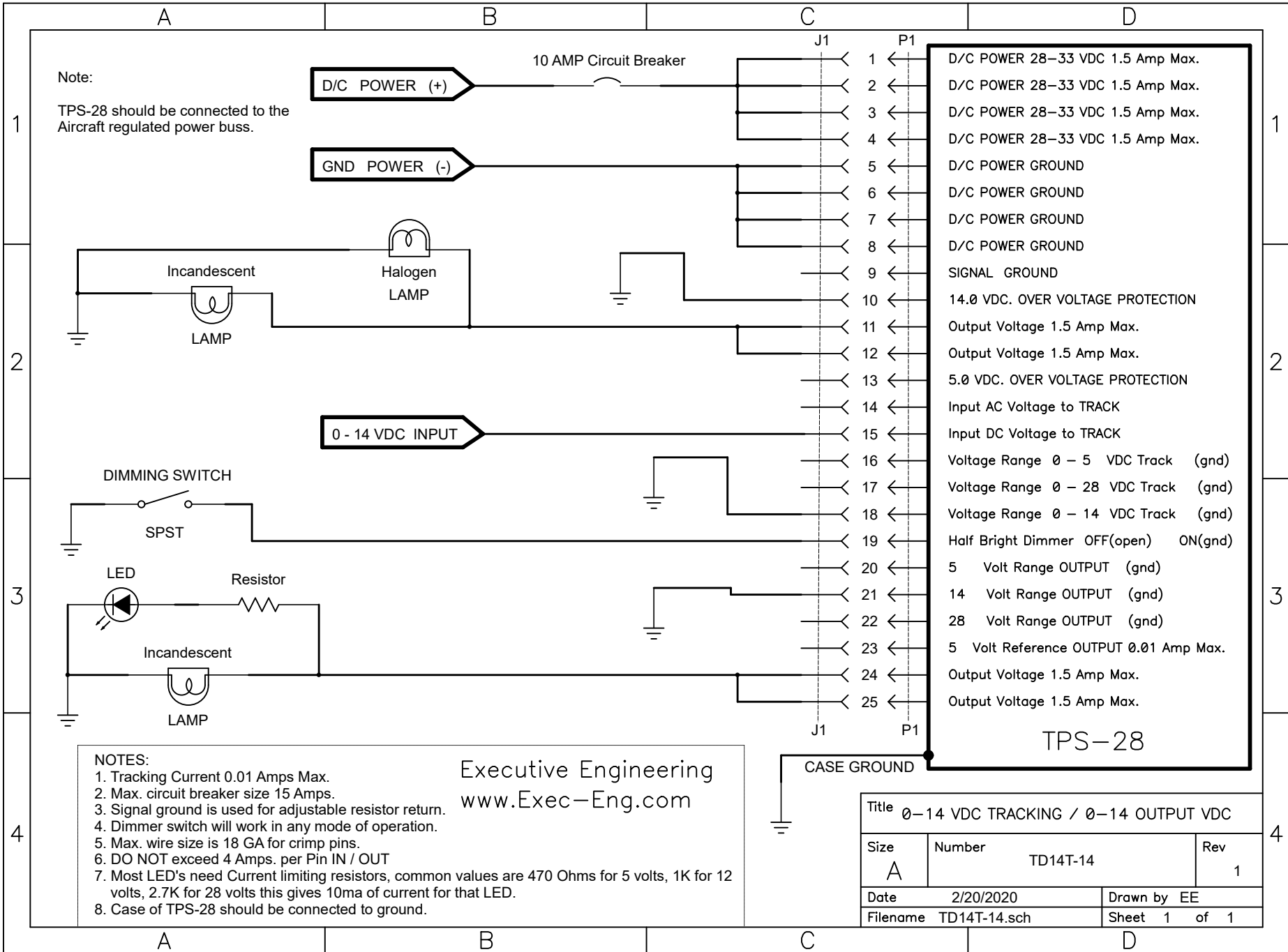
Title 0-115 VAC TRACKING / 0-28 OUPUT VOLTS		
Size A	Number TAC-T-28	Rev 1
Date 2/20/2020	Drawn by EE	
Filename TAC-T-28.sch	Sheet 1 of 1	

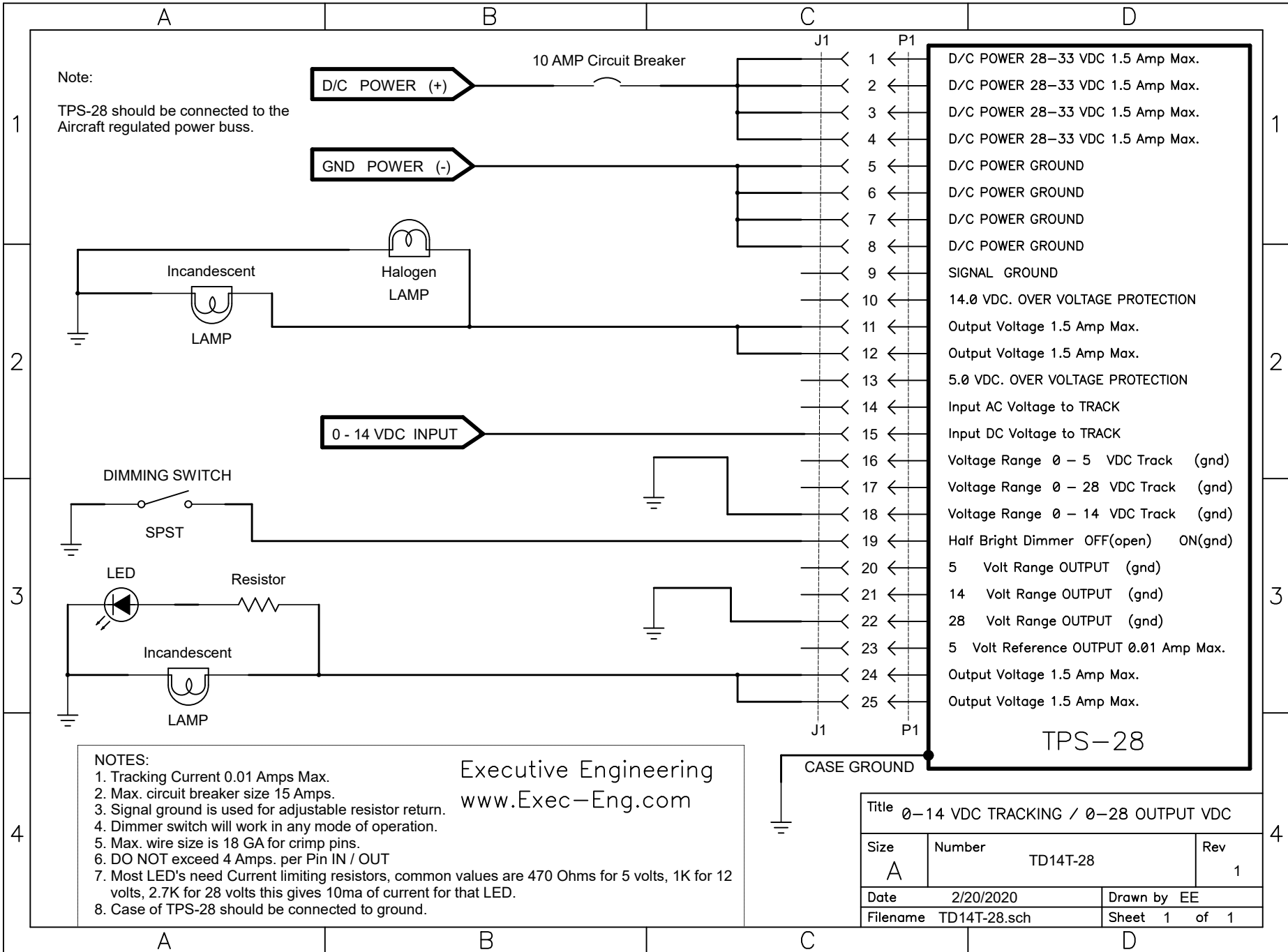


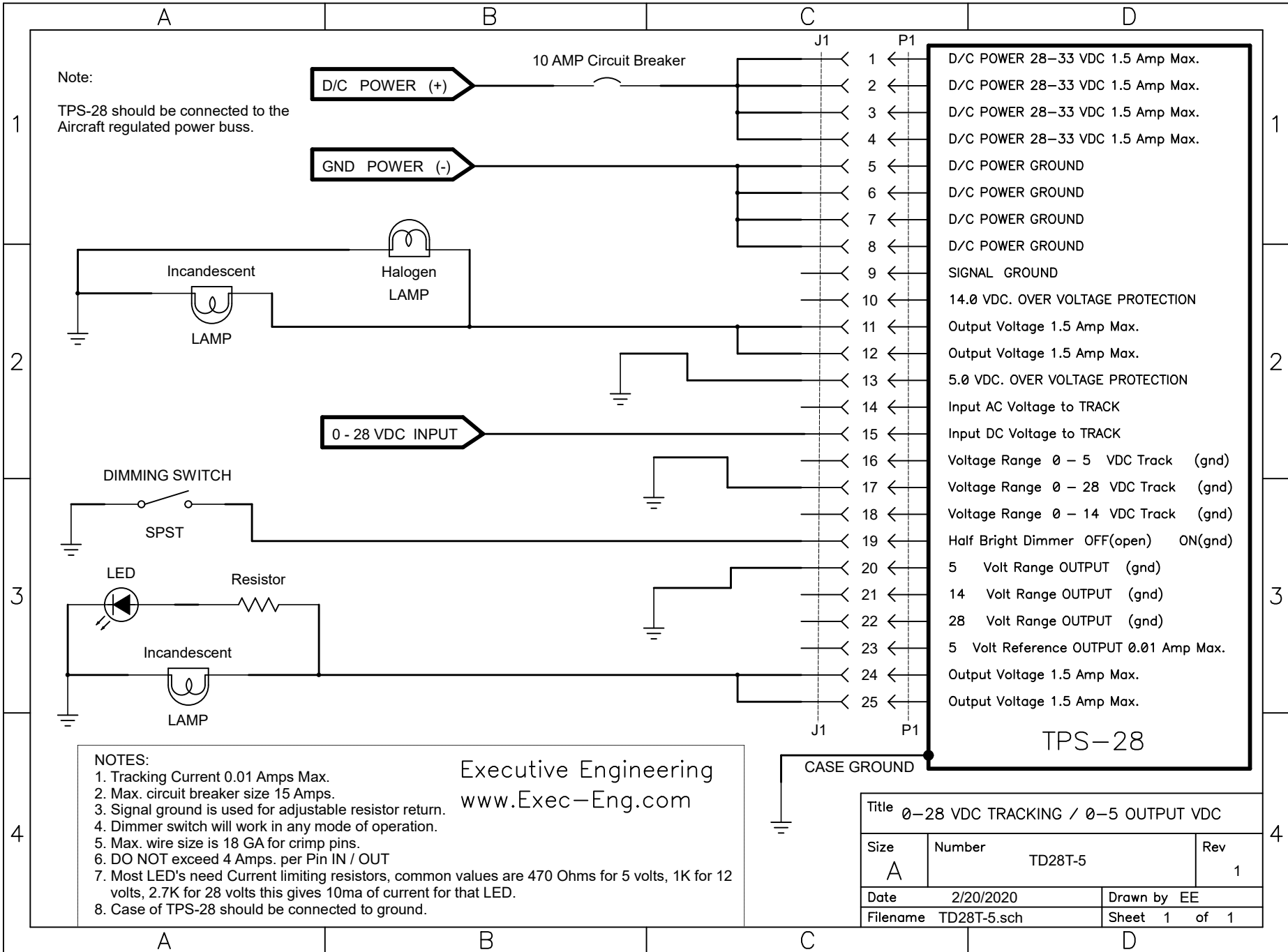


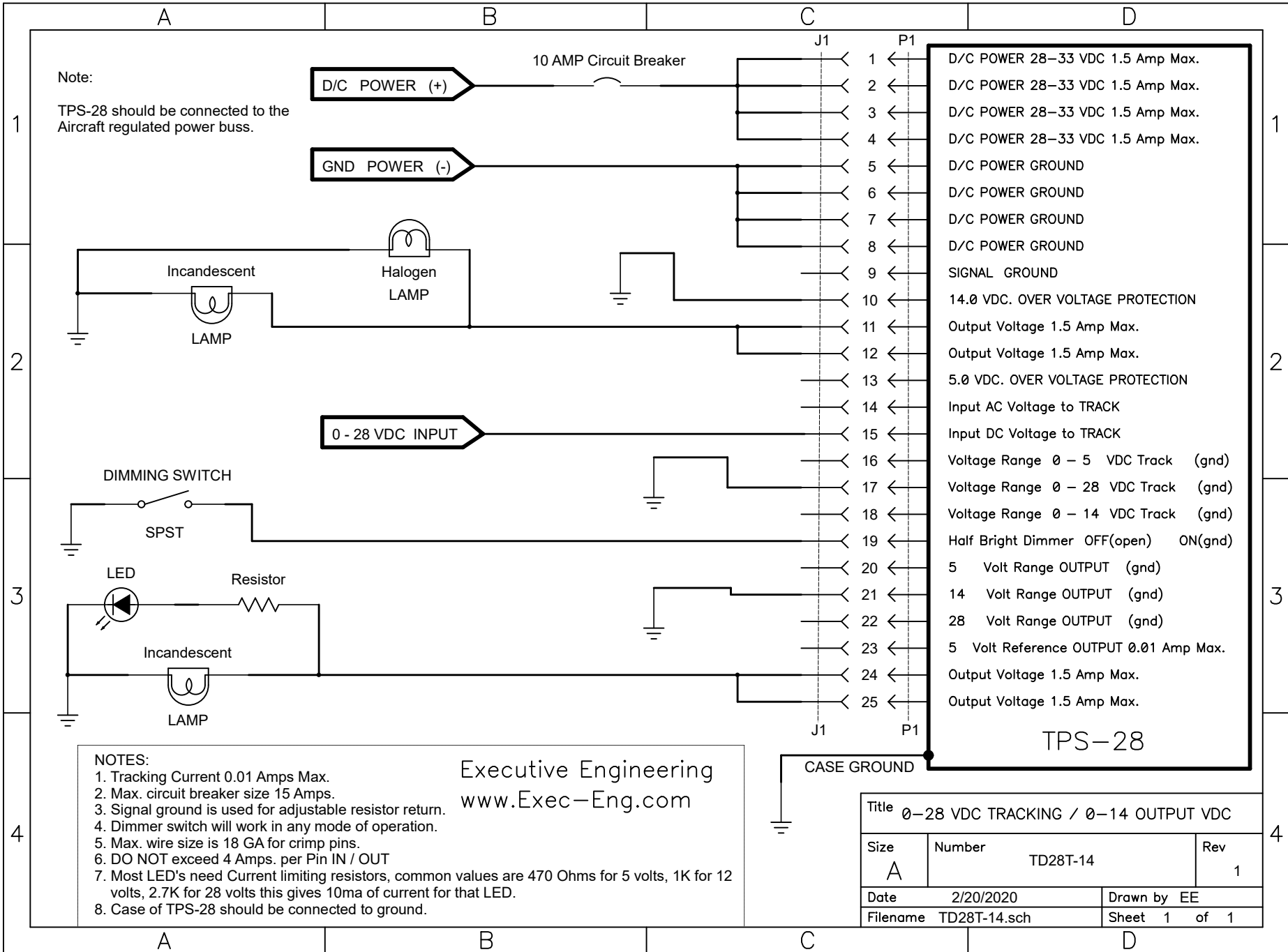


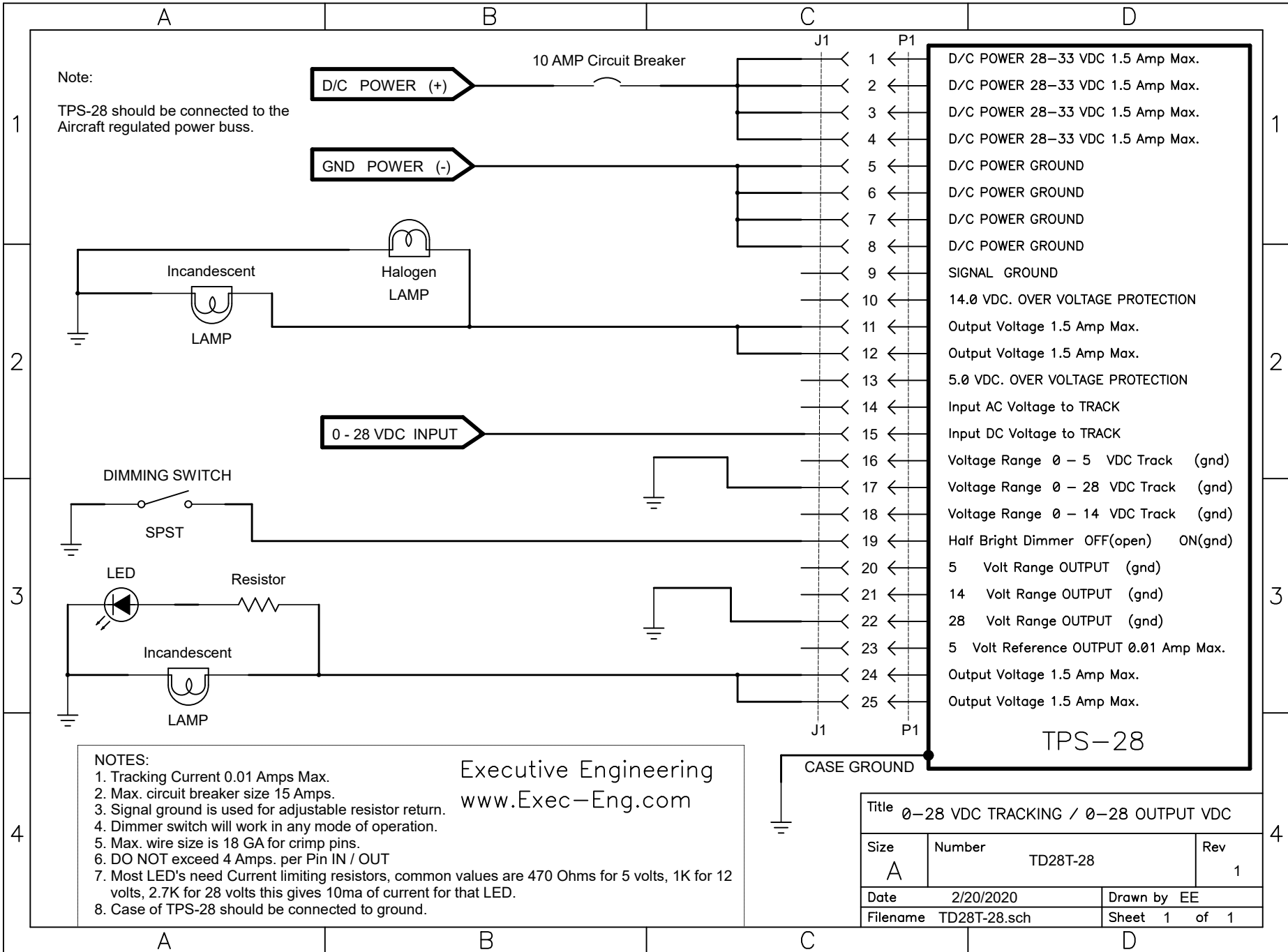


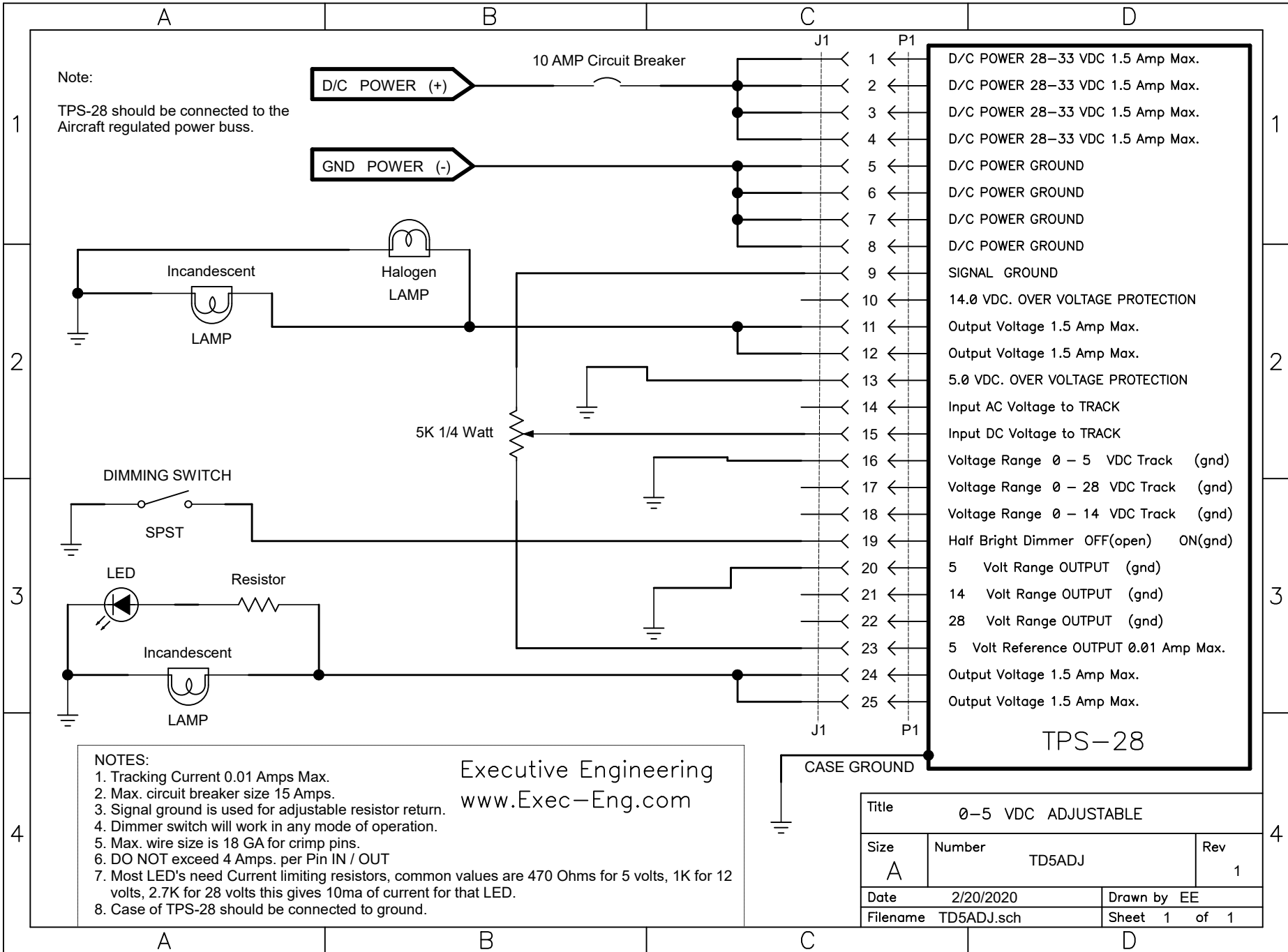












Note:
TPS-28 should be connected to the Aircraft regulated power buss.

1	D/C POWER 28-33 VDC 1.5 Amp Max.
2	D/C POWER 28-33 VDC 1.5 Amp Max.
3	D/C POWER 28-33 VDC 1.5 Amp Max.
4	D/C POWER 28-33 VDC 1.5 Amp Max.
5	D/C POWER GROUND
6	D/C POWER GROUND
7	D/C POWER GROUND
8	D/C POWER GROUND
9	SIGNAL GROUND
10	14.0 VDC. OVER VOLTAGE PROTECTION
11	Output Voltage 1.5 Amp Max.
12	Output Voltage 1.5 Amp Max.
13	5.0 VDC. OVER VOLTAGE PROTECTION
14	Input AC Voltage to TRACK
15	Input DC Voltage to TRACK
16	Voltage Range 0 - 5 VDC Track (gnd)
17	Voltage Range 0 - 28 VDC Track (gnd)
18	Voltage Range 0 - 14 VDC Track (gnd)
19	Half Bright Dimmer OFF(open) ON(gnd)
20	5 Volt Range OUTPUT (gnd)
21	14 Volt Range OUTPUT (gnd)
22	28 Volt Range OUTPUT (gnd)
23	5 Volt Reference OUTPUT 0.01 Amp Max.
24	Output Voltage 1.5 Amp Max.
25	Output Voltage 1.5 Amp Max.

TPS-28

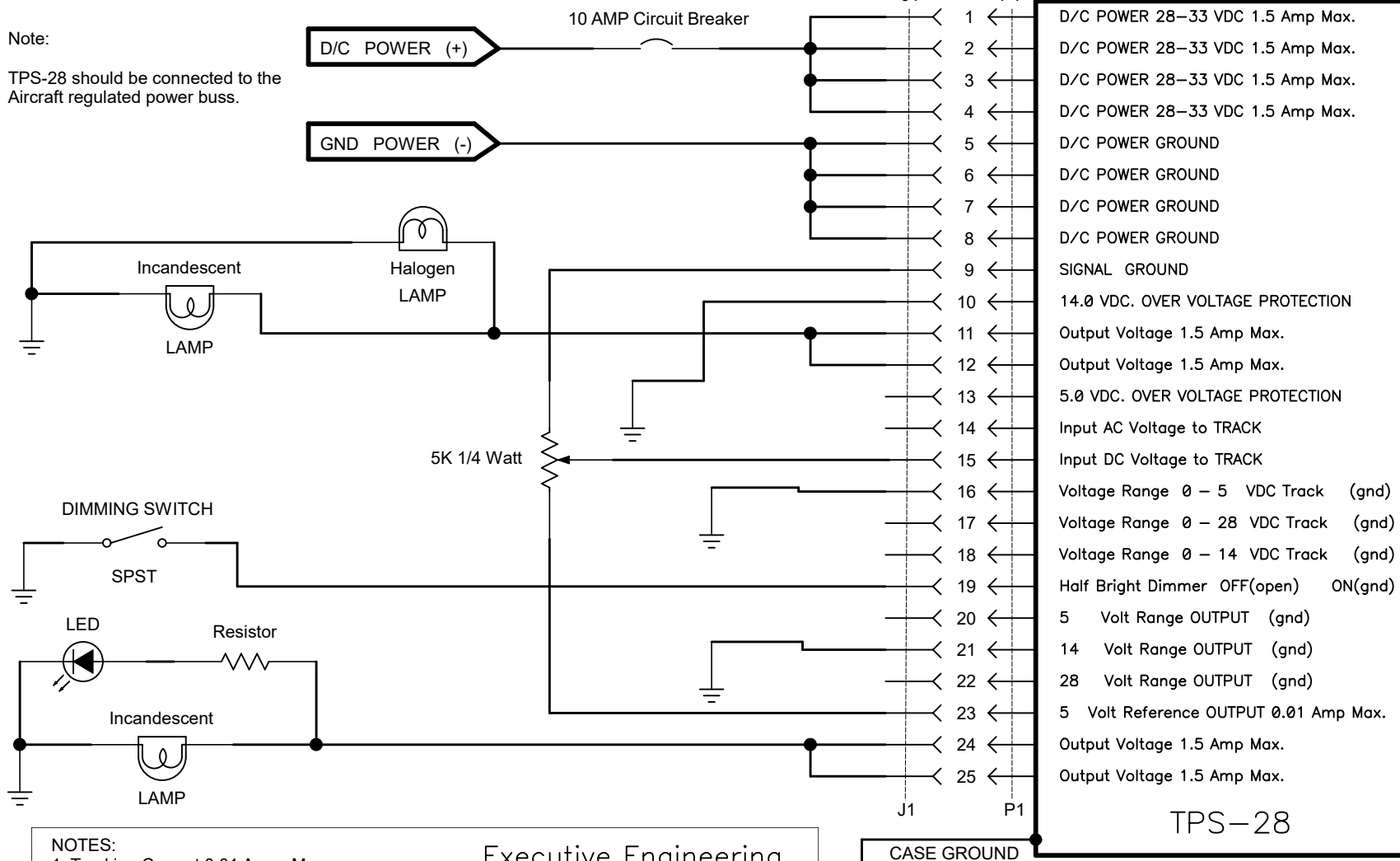
NOTES:

1. Tracking Current 0.01 Amps Max.
2. Max. circuit breaker size 15 Amps.
3. Signal ground is used for adjustable resistor return.
4. Dimmer switch will work in any mode of operation.
5. Max. wire size is 18 GA for crimp pins.
6. DO NOT exceed 4 Amps. per Pin IN / OUT
7. Most LED's need Current limiting resistors, common values are 470 Ohms for 5 volts, 1K for 12 volts, 2.7K for 28 volts this gives 10ma of current for that LED.
8. Case of TPS-28 should be connected to ground.

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Title 0-5 VDC ADJUSTABLE		
Size A	Number TD5ADJ	Rev 1
Date 2/20/2020	Drawn by EE	
Filename TD5ADJ.sch	Sheet 1 of 1	

Note:
TPS-28 should be connected to the Aircraft regulated power buss.

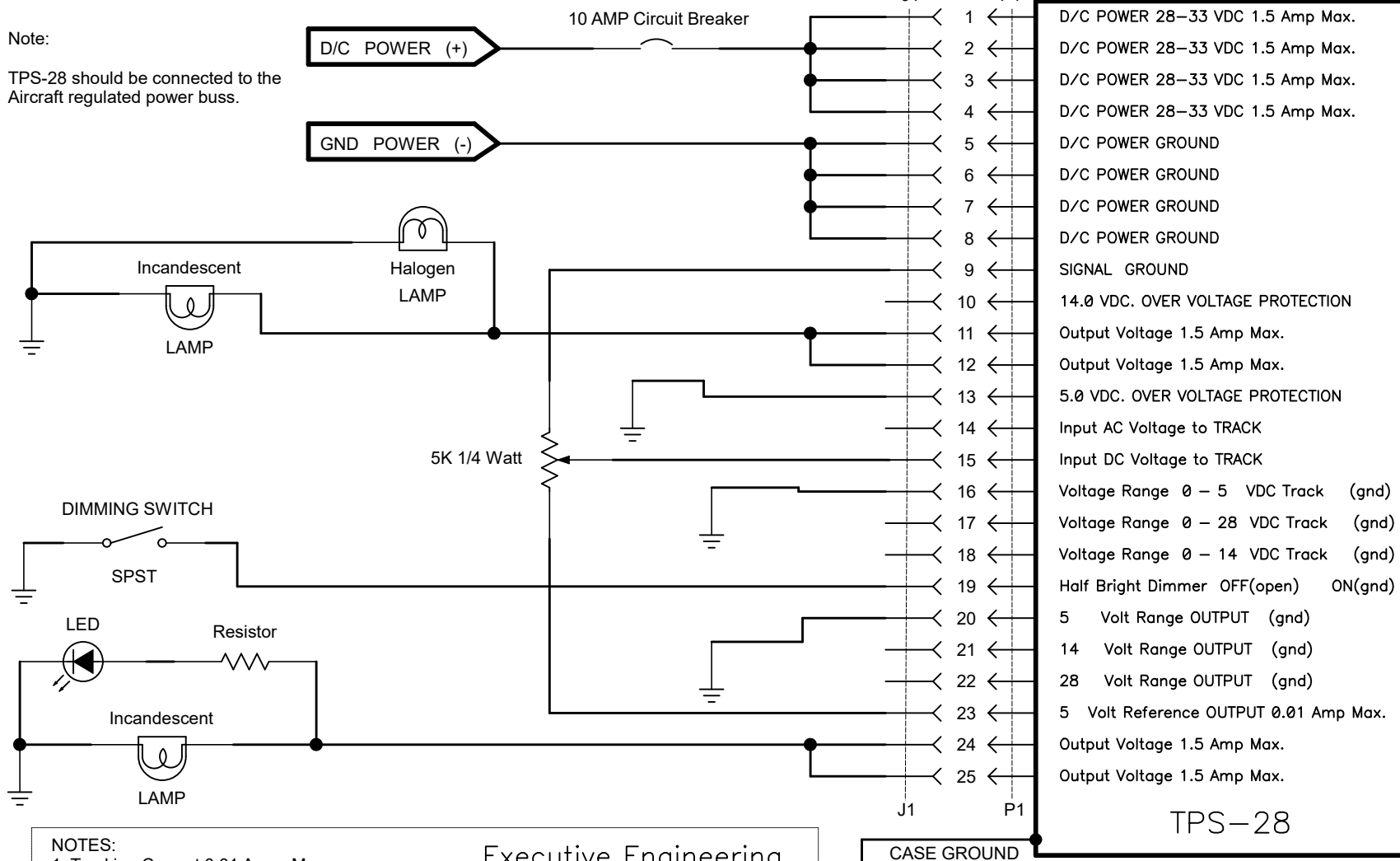


- NOTES:
1. Tracking Current 0.01 Amps Max.
 2. Max. circuit breaker size 15 Amps.
 3. Signal ground is used for adjustable resistor return.
 4. Dimmer switch will work in any mode of operation.
 5. Max. wire size is 18 GA for crimp pins.
 6. DO NOT exceed 4 Amps. per Pin IN / OUT
 7. Most LED's need Current limiting resistors, common values are 470 Ohms for 5 volts, 1K for 12 volts, 2.7K for 28 volts this gives 10ma of current for that LED.
 8. Case of TPS-28 should be connected to ground.

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Title			0-14 VDC ADJUSTABLE		
Size	Number			Rev	
A	TD14ADJ			1	
Date	2/20/2020	Drawn by		EE	
Filename	TD14ADJ.sch	Sheet		1	of 1

Note:
TPS-28 should be connected to the Aircraft regulated power buss.



1	←	D/C POWER 28-33 VDC 1.5 Amp Max.
2	←	D/C POWER 28-33 VDC 1.5 Amp Max.
3	←	D/C POWER 28-33 VDC 1.5 Amp Max.
4	←	D/C POWER 28-33 VDC 1.5 Amp Max.
5	←	D/C POWER GROUND
6	←	D/C POWER GROUND
7	←	D/C POWER GROUND
8	←	D/C POWER GROUND
9	←	SIGNAL GROUND
10	←	14.0 VDC. OVER VOLTAGE PROTECTION
11	←	Output Voltage 1.5 Amp Max.
12	←	Output Voltage 1.5 Amp Max.
13	←	5.0 VDC. OVER VOLTAGE PROTECTION
14	←	Input AC Voltage to TRACK
15	←	Input DC Voltage to TRACK
16	←	Voltage Range 0 - 5 VDC Track (gnd)
17	←	Voltage Range 0 - 28 VDC Track (gnd)
18	←	Voltage Range 0 - 14 VDC Track (gnd)
19	←	Half Bright Dimmer OFF(open) ON(gnd)
20	←	5 Volt Range OUTPUT (gnd)
21	←	14 Volt Range OUTPUT (gnd)
22	←	28 Volt Range OUTPUT (gnd)
23	←	5 Volt Reference OUTPUT 0.01 Amp Max.
24	←	Output Voltage 1.5 Amp Max.
25	←	Output Voltage 1.5 Amp Max.

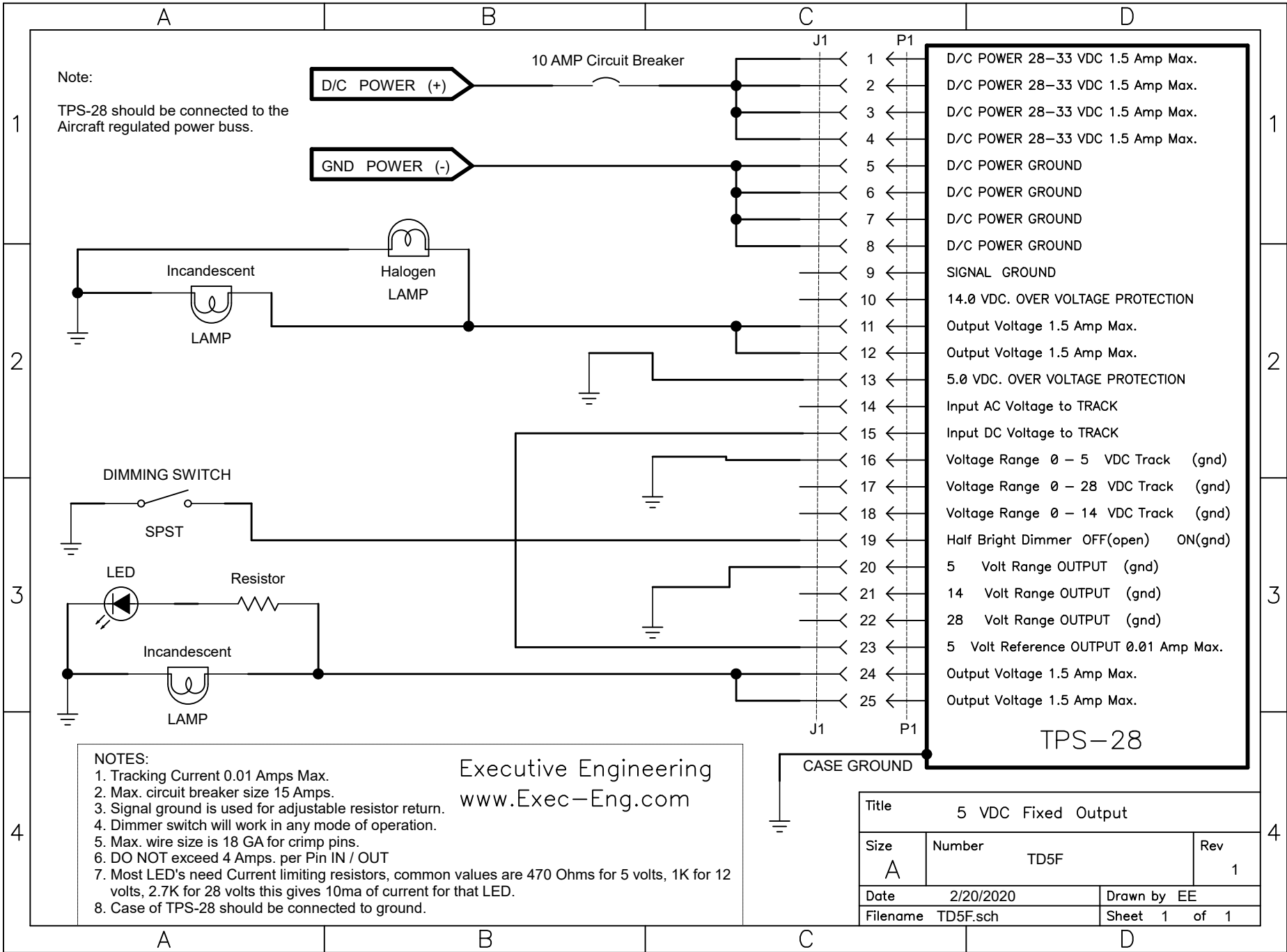
TPS-28

CASE GROUND

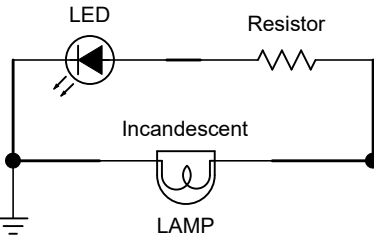
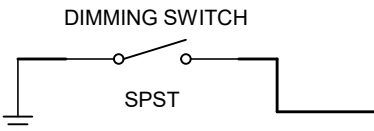
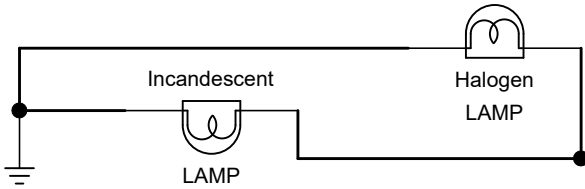
- NOTES:
1. Tracking Current 0.01 Amps Max.
 2. Max. circuit breaker size 15 Amps.
 3. Signal ground is used for adjustable resistor return.
 4. Dimmer switch will work in any mode of operation.
 5. Max. wire size is 18 GA for crimp pins.
 6. DO NOT exceed 4 Amps. per Pin IN / OUT
 7. Most LED's need Current limiting resistors, common values are 470 Ohms for 5 volts, 1K for 12 volts, 2.7K for 28 volts this gives 10ma of current for that LED.
 8. Case of TPS-28 should be connected to ground.

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Title 0-28 VDC ADJUSTABLE		
Size A	Number TD28ADJ	Rev 1
Date 2/20/2020	Drawn by EE	
Filename TD28ADJ.sch	Sheet 1 of 1	



Note:
 TPS-28 should be connected to the Aircraft regulated power buss.

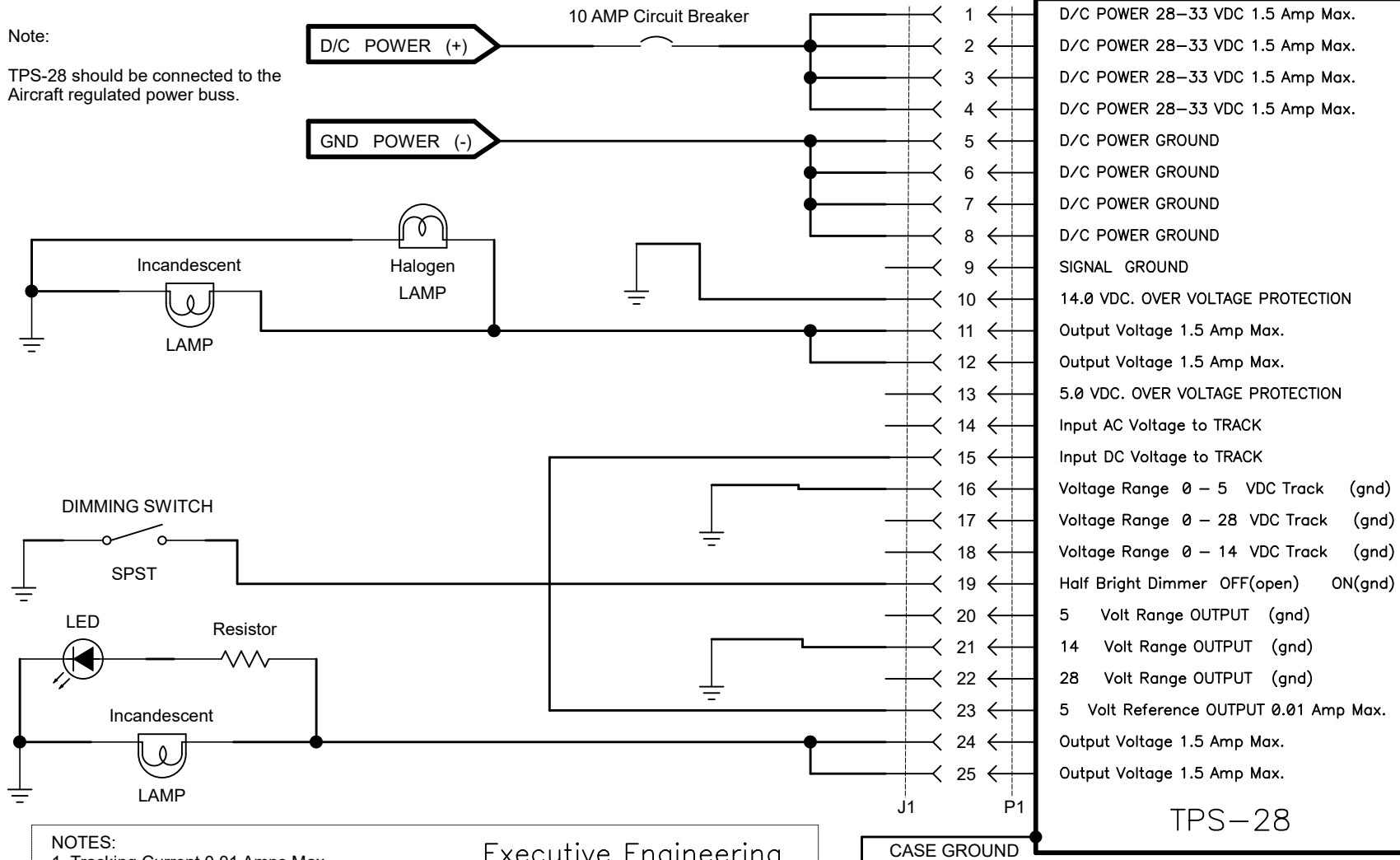


- NOTES:
1. Tracking Current 0.01 Amps Max.
 2. Max. circuit breaker size 15 Amps.
 3. Signal ground is used for adjustable resistor return.
 4. Dimmer switch will work in any mode of operation.
 5. Max. wire size is 18 GA for crimp pins.
 6. DO NOT exceed 4 Amps. per Pin IN / OUT
 7. Most LED's need Current limiting resistors, common values are 470 Ohms for 5 volts, 1K for 12 volts, 2.7K for 28 volts this gives 10ma of current for that LED.
 8. Case of TPS-28 should be connected to ground.

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Title			5 VDC Fixed Output		
Size	Number			Rev	
A	TD5F			1	
Date	2/20/2020	Drawn by		EE	
Filename	TD5F.sch	Sheet		1	of 1

Note:
TPS-28 should be connected to the Aircraft regulated power buss.



NOTES:

1. Tracking Current 0.01 Amps Max.
2. Max. circuit breaker size 15 Amps.
3. Signal ground is used for adjustable resistor return.
4. Dimmer switch will work in any mode of operation.
5. Max. wire size is 18 GA for crimp pins.
6. DO NOT exceed 4 Amps. per Pin IN / OUT
7. Most LED's need Current limiting resistors, common values are 470 Ohms for 5 volts, 1K for 12 volts, 2.7K for 28 volts this gives 10ma of current for that LED.
8. Case of TPS-28 should be connected to ground.

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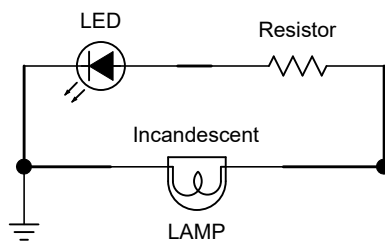
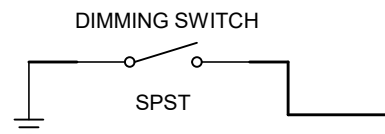
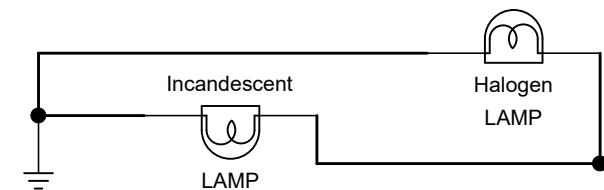
Title			14 VDC Fixed Output		
Size	Number			Rev	
A	TD14F			1	
Date	2/20/2020	Drawn by		EE	
Filename	TD14F.sch	Sheet		1	of 1

Note:
TPS-28 should be connected to the Aircraft regulated power buss.

D/C POWER (+)

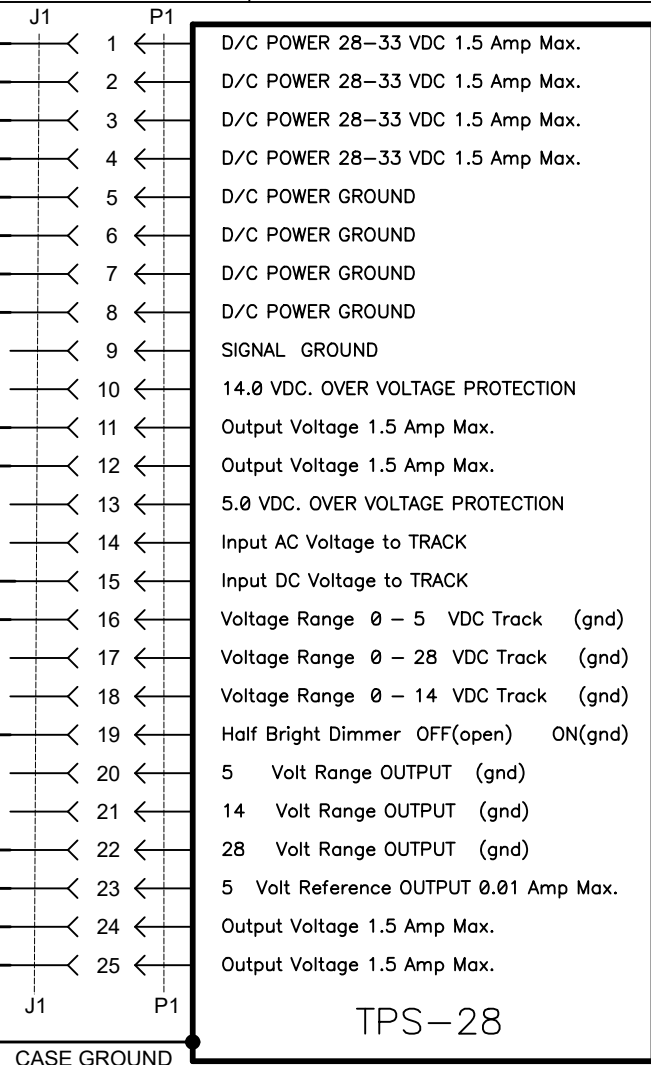
GND POWER (-)

10 AMP Circuit Breaker



- NOTES:
1. Tracking Current 0.01 Amps Max.
 2. Max. circuit breaker size 15 Amps.
 3. Signal ground is used for adjustable resistor return.
 4. Dimmer switch will work in any mode of operation.
 5. Max. wire size is 18 GA for crimp pins.
 6. DO NOT exceed 4 Amps. per Pin IN / OUT
 7. Most LED's need Current limiting resistors, common values are 470 Ohms for 5 volts, 1K for 12 volts, 2.7K for 28 volts this gives 10ma of current for that LED.
 8. Case of TPS-28 should be connected to ground.

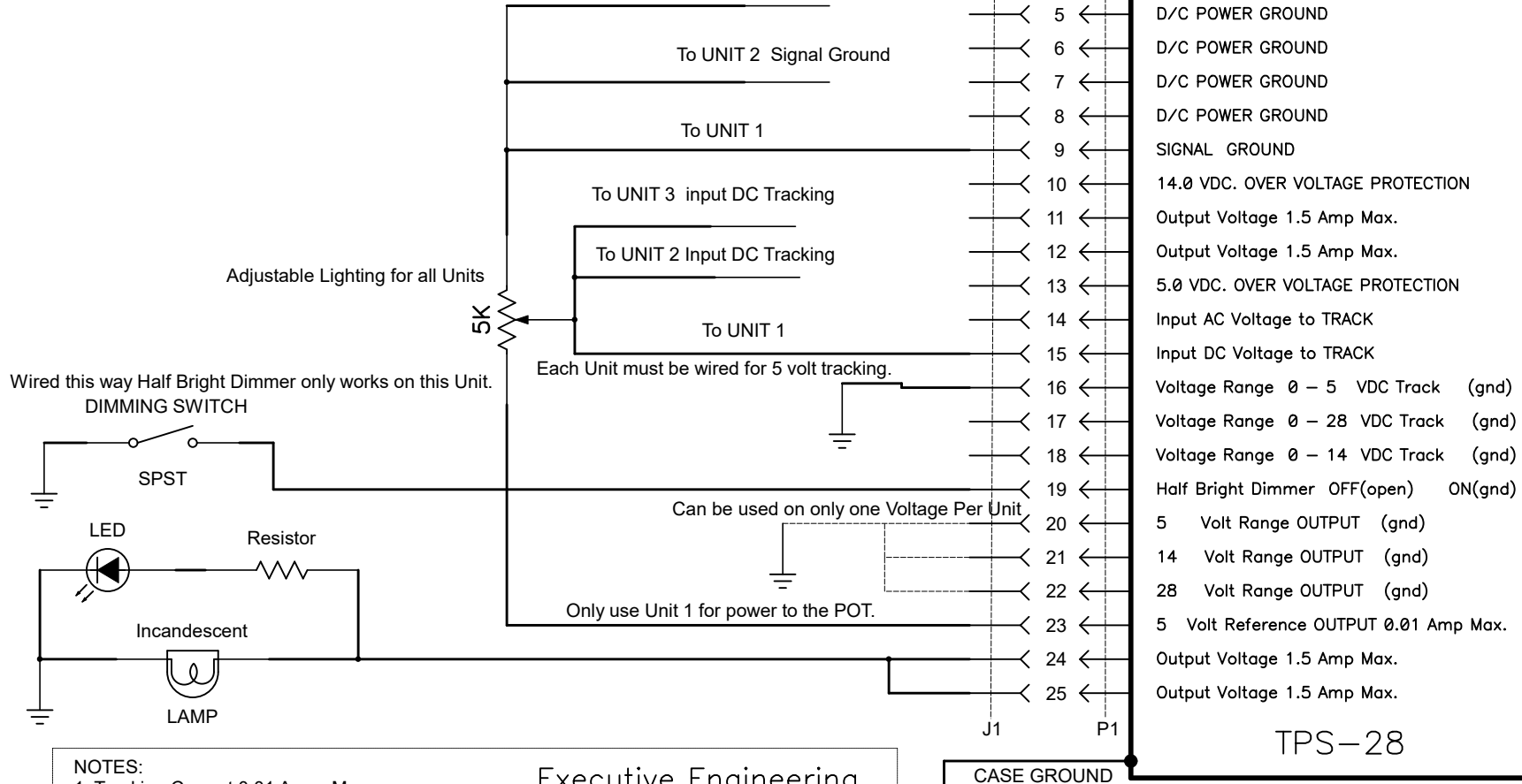
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TPS-28

Title			28 VDC Fixed Output		
Size	Number			Rev	
A	TD28F			1	
Date	2/20/2020	Drawn by		EE	
Filename	TD28F.sch	Sheet		1	of 1

The only drawback of this design is if the pot fails all the units fail. Ganged Pots are always a better option in panel control.



NOTES:

1. Tracking Current 0.01 Amps Max.
2. Max. circuit breaker size 15 Amps.
3. Signal ground is used for adjustable resistor return.
4. Dimmer switch will work in any mode of operation.
5. Max. wire size is 18 GA for crimp pins.
6. DO NOT exceed 4 Amps. per Pin IN / OUT
7. Most LED's need Current limiting resistors, common values are 470 Ohms for 5 volts, 1K for 12 volts, 2.7K for 28 volts this gives 10ma of current for that LED.
8. Case of TPS-28 should be connected to ground.

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Title One Dimmer Pot for operation of all Units			
Size	Number	Rev	
A	MultiDimmer	1	
Date	2/20/2020	Drawn by EE	
Filename	multidimmer.sch	Sheet 1 of 1	

TPS12D & TPS28D MOUNTING DRAWING

SIZE OVER ALL: 5.5"L x 3.25"W x 1.75"H

