

TIDA-00282 Cable Assemblies

These cable assemblies are intended for use with the C2000-based Automotive Digitally-controlled Boost Power Supply board described in TI Designs TIDA-00282.

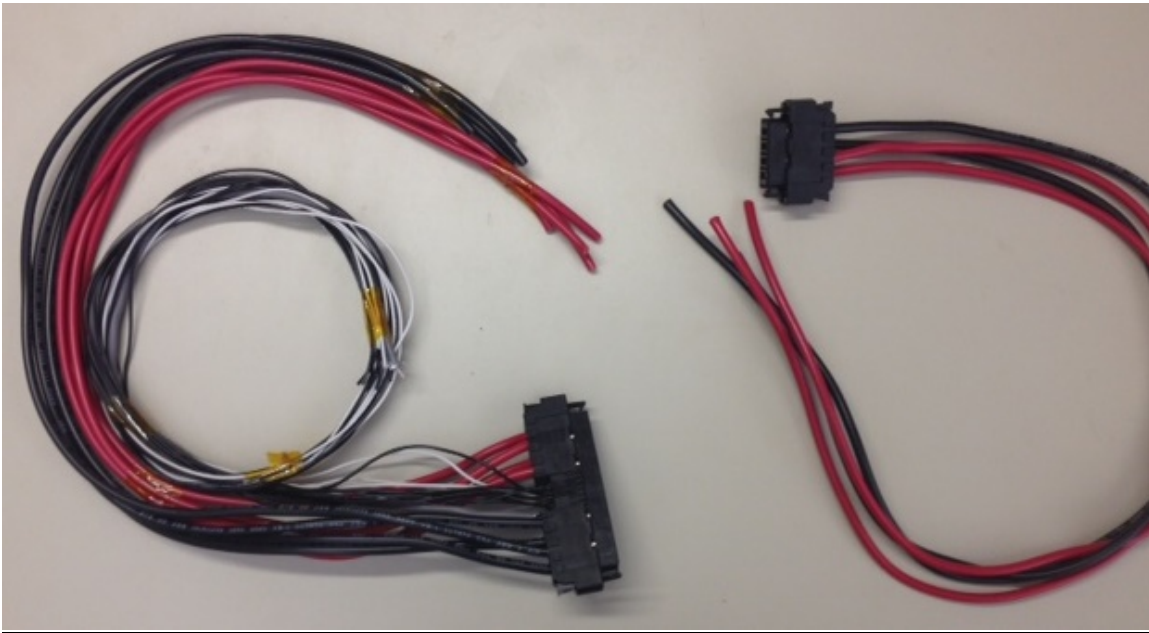


Figure 1 Input power cable (left) and output power cable (right)

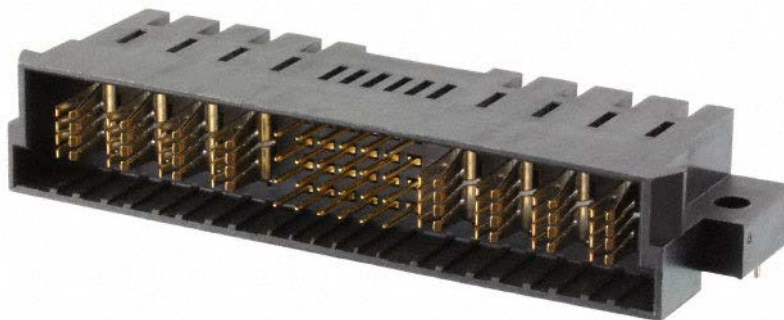
The overall TIDA-00282 design is intended for output current up to about 30A. When the input voltage drops from the nominal 12V, the input current increases by the ratio of the boosted output voltage (12V) to the input voltage. So for example, 30A of output current at 12V requires about 60A of input current at 6V. Therefore the input power cable uses 4 positive (red) wires and 4 ground (black) wires while the output power cable has only 2 wires for each.

Assembly 1: Input power and signal cable

- Using TE connector housing 1-1600788-4
- Power conductors
 - Length 2'
 - Blunt cut ends
 - 10 AWG.
 - Four conductors shall be red and four shall be black.
- Signal conductors
 - There will be 12 signal conductors total 6 will be ground.
 - Length 3'
 - Blunt cut ends
 - 2 conductor twisted shielded cable for 2 of the conductors prefer not to be red or black.
 - The rest of the signal conductors will be 20 or 22 AWG hook up wire.
 - 4 other signals shall not be red or black or the colors of the shielded cable.
 - 6 Grounds to be black
- Pins will be 1-1600961-7, 1-1600961-8 or 1-1600960-7, 1-1600960-8 for the power and 5531216-5 or 5531224-6 for the signals. (All TE part numbers).

PART NUMBER	ROWS	POWER (L)				SIGNAL						POWER (R)					
		P8	P7	P6	P5	6	5	4	3	2	1	P4	P3	P2	P1		
1-1600788-4	D	□	RM	RM	RM	RM	E	E	E	E	E	E	RM	RM	RM	RM	□
	C						E	E	E	E	E	E					
	B						E	E	E	E	E	E					
	A						E	E	E	E	E	E					
4P + 24S + 4P																	

• [Figure 2 Pin arrangement of connector for assembly 2](#)



[Figure 3 Board mounted connector \(not part of this assembly\)](#)

Assembly 1 Input power and signal cable pin-out

P1: ----- 10 AWG RED
P2: ----- 10 AWG RED
P3: ----- 10 AWG RED
P4: ----- 10 AWG RED
S1A: ----- no connection
S1B: ----- 22 AWG WHITE
S1C: ----- no connection
S1D: ----- 22 AWG BLACK
S2A: ----- no connection
S2B: ----- 22 AWG WHITE
S2C: ----- no connection
S2D: ----- 22 AWG BLACK
S3A: ----- no connection
S3B: ----- 22 AWG WHITE
S3C: ----- no connection
S3D: ----- 22 AWG BLACK
S4A: ----- no connection
S4B: ----- 22 AWG WHITE
S4C: ----- no connection
S4D: ----- 22 AWG BLACK
S5A: ----- no connection
S5B: ----- | ----- 22 AWG (TwistedPair A)
S5C: ----- no connection
S5D: ----- 22 AWG BLACK
S6A: ----- no connection
S6B: ----- | ----- 22 AWG (Twisted Pair B)
S6C: ----- no connection
S6D: ----- 22 AWG BLACK
P5: ----- 10 AWG BLACK
P6: ----- 10 AWG BLACK
P7: ----- 10 AWG BLACK
P8: ----- 10 AWG BLACK

Assembly 2: Output power cable

- Using TE connector housing 1600798-4
- Length 2'
- Blunt cut ends
- 10 AWG
- Two conductors shall be red and two shall be black.
- Pins are: 1-1600961-7, 1-1600961-8 or 1-1600960-7, 1-1600960-8

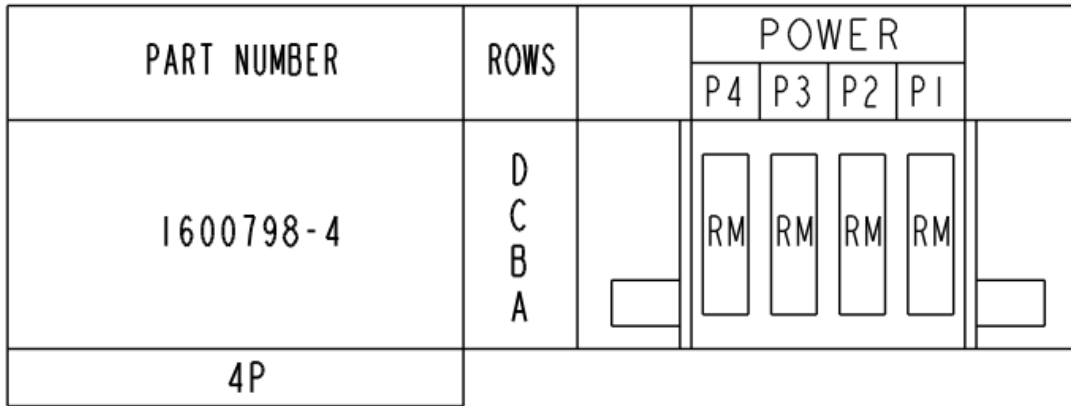


Figure 4 Contact arrangement of connector for assembly 1

Pin-out

P1: ----- 2' 10 AWG RED

P2: ----- 2' 10 AWG RED

P3: ----- 2' 10 AWG BLACK

P4: ----- 2' 10 AWG BLACK

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