



TCU-2000

QTY	DESCRIPTION	PCS P/N	NOTES
1	CONNECTOR	CON-0031	
52	TERMINALS	CON-0046	
1	BACK SHELL	CON-0005	
1	MULTI CABLE SEAL	CON-0043	BLK

TXT	COLOR	NOTES
BLK	BLACK	
BRN	BROWN	
RED	RED	
ORN	ORANGE	
YEL	YELLOW	
LT.GRN	LIGHT GREEN	
GRN	GREEN	
LT.BLU	LIGHT BLUE	
BLU	BLUE	
VIO	VIOLET	
GRY	GRAY	
WHT	WHITE	
PNK	PINK	

S-#	FUNCTION	COLOR
S1	12 VOLTS SWITCHED	RED
S2	GROUND	BLK
S3	SENSOR GROUND	BLK/WHT
S4	CAN HIGH	WHT/RED
S5	CAN LOW	WHT/BLK

F1	QTY	DESCRIPTION	PCS P/N	NOTES
	1	CONNECTOR	CON-2200	
	1	FUSE CAP:	CON-2201	BLK
	1	TPA	CON-2202	BLU
	2	TERMINAL	CON-1020	(18-16 AWG)
	1	FUSE	CON-2221	10A
	2	CABLE SEAL	CON-1001	GRN

C-1 LAPTOP CAL CONNECTOR			
QTY	DESCRIPTION	PCS P/N	NOTES
1	CONNECTOR	CON-3416	
3	TERMINALS	CON-1038	
1	TPA	CON-3417	CREAM
3	CABLE SEALS	CON-1027	WHT

C-2 OPTION			
QTY	DESCRIPTION	PCS P/N	NOTES
1	CONNECTOR	CON-0065	
4	TERMINALS	CON-0051	

C-3 CAN BUS CONNECTOR			
QTY	DESCRIPTION	PCS P/N	NOTES
1	CONNECTOR	CON-5050	
2	TERMINALS	CON-5200	(20-18gauge)
1	WEDGE LOCK	CON-5100	ORN

APPLICABLE STANDARDS

- ASME Y14.100-200
- ASME Y14.5M-1994
- IPC/WHMA-A-620A-CLASS 2
- MARK IAW MIL-STD-130.

NOTES:

- 1.) WIRE LENGTH TOLERANCE +/- .12 INCH
- 2.) WIRE GAUGE IS 20 AWG UNLESS OTHERWISE STATED
- 3.) TAPE ALL LOOM JOINTS UNLESS OTHERWISE STATED
- 4.) TWIST INDICATED WIRES AT LEAST 10-12 TURNS PER FOOT
- 5.) PLACE TAGS NO MORE THAN 2" FROM CONNECTOR. PLACE TAGS FOR UNTERMINATED WIRES NO MORE THAN 2" FROM UNTERMINATED END.
- 6.) WIRE TYPE IS TXL UNLESS OTHERWISE STATED

COMPANY: POWERTRAIN CONTROL SOLUTIONS

TITLE: UNIVERSAL TCM-2000 HARNESS WITH OPTION CONNECTOR

SIZE: C	CUSTOMER DRAWING NO. XXXXXX-XXXXX	PCS PART NUMBER TCM-4000	REV: 001
DRAWN BY: FRED D.	DATE: 2/8/2013	APPROVED BY: XXXXX	DATE: SHEET 1 OF 5

REVISION HISTORY				
LEVEL	DESCRIPTION	DATE	DRN	APP
1	RELEASE	2/22/2013	FAD	

C5 OPTION			
PIN	CIRCUIT FUNCTION	COLOR	TCU POS.
1	SWITCHED +12V DC	RED	TCU-1,2,3,4, S1
2	GND.	BLK	TCU-60,61,62,63, S2
3	CAN HIGH	WHT/RED	TCU-33
4	CAN LOW	WHT/BLK	TCU-34

C6 CAN			
PIN	CIRCUIT FUNCTION	COLOR	TCU POS.
1	CAN HIGH	WHT/RED	TCU-33, S5
2	CAN LOW	WHT/BLK	TCU-34, S6

F1			
PIN	CIRCUIT FUNCTION	COLOR	WIRES TO
A	SWITCHED +12V	RED	TCU- 1-4, S1
B	SWITCHED +12V	RED	SWITCHED BATT SOURCE

C4 LAPTOP CAL CONNECTOR			
PIN	CIRCUIT FUNCTION	COLOR	TCU POS.
A	SERIAL RX	RED	TCU-31
B	SIGNAL GND.	WHT	TCU-32
C	SERIAL TX	BLK	TCU-30

SPlice INFORMATION		
S-#	FUNCTION	COLOR
S1	12 VOLTS SWITCHED	RED
S2	GROUND	BLK
S3	SENSOR GROUND	BLK/WHT
S4	CAN HIGH	WHT/RED
S5	CAN LOW	WHT/BLK

LABEL DEFINITION TABLE			
NUM	NAME	PCS P/N	NOTES
L1	TCM-4XXX-001	WRE-8501	
L2	CAN BUS	WRE-8500	
L3	LAPTOP CAL CONNECTOR	WRE-8500	
L4	SWITCHED +12V DC	WRE-8500	
L5	CHASSIS GROUND	WRE-8500	

CPC	Pin Function	Harness Function	Universal Harness	Colors
1	+6v	Battery Connection	Battery Connection	red
2	+6v	Battery Connection	Battery Connection	red
3	+6v	Battery Connection	Battery Connection	red
4	+5v	Battery Connection	Battery Connection	red
5	Speed Input 1	Engine Speed Input	Engine Speed Input	orange/black
6	Speed Input 2	Transmission Speed Input	Transmission Speed Input	orange/red
7	Speed Input 3	TCC Speed Input	TCC Speed Input	orange/l. Green
8	Speed Input 4	Optional Speed Input		orange/l. Blue
9	Speed Output	Speedometer Drive Output	Speedometer Drive Output	orange/white
10	unused	-	-	-
11	unused	-	-	-
12	PWM Out 4/freq2	PWM/Solenoid Driver	PWM/Solenoid Driver	violet/l. Blue
13	Digital Input 1	Digital Input	Digital Input	gray/black
14	Digital Input 2	Digital Input	Digital Input	gray/red
15	Digital Input 3	Digital Input	Digital Input	gray/l. Green
16	Digital Input 4	Digital Input	Digital Input	gray/l. Blue
17	Digital Input 5	Digital Input	Digital Input	gray/white
18	Digital Input 6	Digital Input	Digital Input	gray/orange
19	Digital Out 5	Digital Driver	Digital Driver	pink/white
20	PWM Out 3/freq2	PWM/Solenoid Driver	PWM/Solenoid Driver	violet/l. Green
21	Digital Input 7	Digital Input	Digital Input	gray/yellow
22	Digital Input 8	Digital Input	Digital Input	gray/pink
23	Digital Input 9	Digital Input	-	brown/black
24	Digital Input 10	Digital Input	-	brown/red
25	Digital Input 11	Digital Input	-	brown/l. Green
26	Digital Input 12	Digital Input	-	brown/l. Blue
27	Digital Out 6	Digital Driver	Digital Driver	pink/orange
28	PWM Out 2/freq1	PWM/Solenoid Driver	PWM/Solenoid Driver	violet/red
29	unused	-	-	-
30	RS-232 Transmit	Communications Cable	db9	white/orange
31	RS-232 Receive	Communications Cable	db9	white/l. Blue
32	CAN/RS-232 GND	Communications Cable	db9	white/l. Green
33	CAN High	Communications Cable	-	white/red
34	CAN Low	Communications Cable	-	white/black
35	unused	-	-	-
36	Digital Out 3 / PWM 9	Digital Driver	Digital Driver	pink/l. Green
37	PWM Out 3/freq 1	PWM/Solenoid Driver	PWM/Solenoid Driver	violet/black
38	unused	-	-	-
39	Digital Input 13	Digital Input	-	brown/white
40	Digital Input 14	Digital Input	-	brown/orange
41	Digital Input 15	Digital Input	-	brown/yellow
42	Digital Input 16	Digital Input	-	brown/pink
43	unused	-	-	-
44	Digital Out 4	Digital Driver	Digital Driver	pink/l. Blue
45	PWM Out 6/freq1	PWM/Solenoid Driver	PWM/Solenoid Driver	violet/orange
46	Analog Input 1	Analog Input	Analog Input	yellow/black
47	Analog Input 2	Analog Input	Analog Input	yellow/red
48	Analog Input 3	Analog Input	Analog Input	yellow/l. Green
49	Analog Input 4	Analog Input	Analog Input	yellow/l. Blue
50	Analog Input 5/temp	Analog Input	Analog Input	yellow/white
51	Analog Input 6/temp	Analog Input	Analog Input	yellow/orange
52	Pwm Out 5/freq1	PWM/Solenoid Driver	PWM/Solenoid Driver	violet/white
53	Digital Out 2 / PWM 8	Digital Driver	Digital Driver	pink/red
54	Sensor /AD Gnd	Sensor or reference Gnd	Sensor or reference Gnd	black/white
55	unused	-	-	-
56	unused	-	-	-
57	unused	-	-	-
58	Ref Voltage (4v Sensor Output)	Sensor/reference Voltage	Sensor/reference Voltage	red/white
59	Digital Out / PWM 7	Digital Driver	Digital Driver	pink/black
60	Gnd	Battery Connection	Battery Connection	black
61	Gnd	Battery Connection	Battery Connection	black
62	Gnd	Battery Connection	Battery Connection	black
63	Gnd	Battery Connection	Battery Connection	black

WIRE COLOR ABBREVIATIONS		
TXT	COLOR	NOTES
BLK	BLACK	
BRN	BROWN	
RED	RED	
ORN	ORANGE	
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LT.GRN	LIGHT GREEN	
GRN	GREEN	
LT.BLU	LIGHT BLUE	
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POWERTRAIN CONTROL SOLUTIONS

TITLE:
UNIVERSAL TCM-2000 HARNESS WITH OPTION CONNECTION

SIZE: C CUSTOMER DRAWING NO: XXXXX-XXXXX PCS PART NUMBER: TCM-4000 REV: 001

DRAWN BY: FRED D. DATE: 2/8/2013 SHEET 2 OF 5