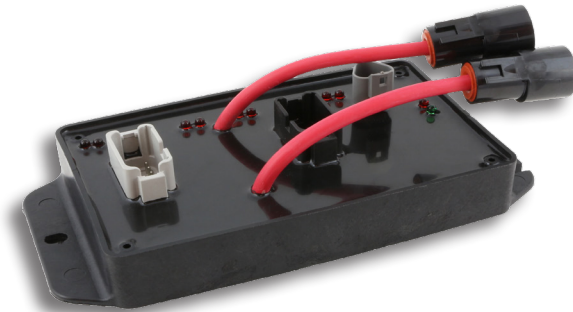


PN: 99-0031



## Description

This device is a 10 channel PWM output module designed to be a cost-effective solution for extreme duty applications. Each PWM output has independent control of frequency and duty cycle, making it versatile to match a wide range of applications. Each output is rated to 25.5A \* with a total device current rating of 190A.

## Product Features

- Operating voltage range of 8-32 VDC
- Reverse battery protection
- Voltage transient protection
- Short circuit and overload protection
- Up to 25.5 A per output \* / 190A per module
- Small footprint
- Potted- protection from harsh environments
- Sealed automotive (Deutsh) connectors
- Easy 2-point mounting / rugged housing
- Output current feedback
- Independent frequency and duty cycle
- Customizable

## Specifications

### Electrical

Parameter	Min	Nominal	Max	Notes
Functional Battery Voltage	9VDC	28VDC	32VDC	Nominal 12/24VDC battery systems
Reverse Battery Voltage	-	-	-28VDC	One minute with max loads attached. No protection mechanism are available during reverse battery.
Max Output Current	-	-	190A	Max current for entire system, 10 outputs on. Each power lead should be fused externally at 100A max. See derating curve.
System Standby Current	-	25mA	30mA	Overall system current with all outputs off, input voltage in functional range.
Max Outputs 1-4 Current (On State)	-	-	25A	Continuous, surges up to 100A (nominal) allowed for less than 2 seconds
Output Leakage Current (Off State)	-	-	10uA	Per channel, current is shunted to ground via internal 100k pulldowns to allow for state measurement with a meter, and to prevent LED glow due to leakage current. 32VDC
ESD Protection	-	-	15KV	All pins
CAN Bus Baud Rate	-	250Kbps	-	-
CAN ID	-	0x60	-	Default, can be changed via address inputs

### Electrical/Mechanical Testing

Parameter	Test	Notes
Thermal Cycle Test	SAE J1455 Section 4.1.3,9-Hour Cycle	Unpowered, -40° C to 85°C, 20 Cycles
Thermal Shock Test	ISO16750-4 Section 5.3.2	Unpowered, -40°C to 85°C , 100 cycles, 60 min dwells
Drop Test/Handling Shock	IEC 60068-2-31 Section 5.1, 5.2	Topple, Free Fall 1m onto concrete
Humidity & Temperature Cycling (Thermal Cyclic Aging)	SAE J1455 Section 4.2.3, Figure 4A, 8 Hour	Powered but not necessarily monitored for function. -40°C to 85°C, 50 cycles
Fluid Compatibility	SAE J1455 Section 4.4	Degreaser, DEF, Diesel, 10W-30 Motor Oil, Anti-Freeze
Thermal Shock Immersion	ISO16750-4 Section 5.4.3	Unit brought to 85°C to then submerged in ice water, salt, detergent, dye, unpowered for dunk.
Ingress Protection (IP)	IEC 60519, IP67	1m of water, 30 mins. Water and equipment temperature within 5°C of each other
Mechanical Shock Test	Half-sine-50g	3 axis, 11ms pulse duration in positive and negative directions with 1 second between pulses
Vibration-Random	Standard Trombetta random vibration profile. Overall GRMS-8.17GRMS, 5-2000Hz	32VDC, 2 Ohm, 350ms, 5 pulses, 1 min intervals
Load Dump	ISO16750-2, Section 4.6.4.2.2, SAE J1113-11, Pulse 5B, ISO7637 Pulse 5B	32VDC, 2 Ohm, 350ms, 5 pulses, 1 min intervals



## Environmental Requirements

Parameter	Min	Nominal	Max	Notes
Operating Temperature	-40°C	-	85°C	-
Storage Temperature	-40°	-	125°C	-
ParameterStorage/Operating humidity	0%	-	100%	Including Condensing
Ingress Protection	-	-	IP67	Protected against immersion up to 1m for 1 hour. With all connectors properly mated and strained relieved

### CAN Connector/Pinout:

Pin	Function
A	CANH
B	CANL
C	Ground (CAN Shield)

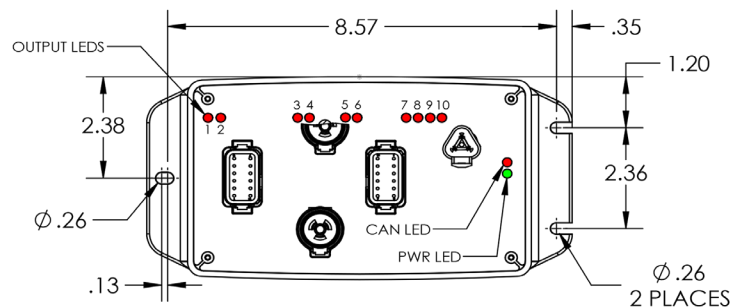
### DTF15-12PB (Pinout Black)

Pin	Function
1,12	Output 7
2,11	Output 8
3,10	Output 9
4,9	Output 10
5	ADDRESSING INPUT 0
6	ADDRESSING INPUT 1
7,8	GROUND

### DTF15-12PA (Pinout Gray)

Pin	Function
1,12	Output 1
2,11	Output 2
3,10	Output 3
4,9	Output 4
5,8	Output 5
6,7	Output 6

## Product Dimensions



DIMENSIONS FOR REFERENCE ONLY  
ALL UNITS IN INCHES

