

Caterpillar ECM Compatible Driver Board with Range Adjustable Output

Applications

- Configured for Joystick Type Control Inputs (JM/JL Series Joysticks, Proportional Slider Modules)
- PWM Output Specifically Designed to Interface to Caterpillar ECM's

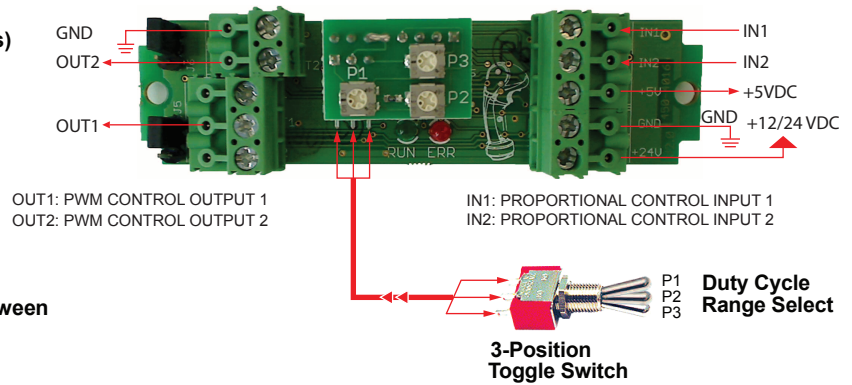
Features

- Wide Supply Range +6V to +28V
- Power Supply and Control Input Protection
- Optional Accessory Board Allows User to Select between Three Adjustable Duty Cycle Output Ranges on One Output

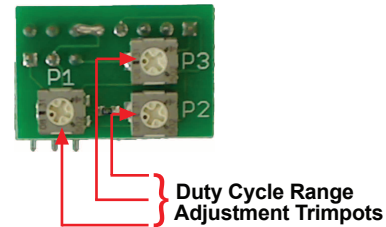
Adjustable Output

The DFA2-C3 Option Board enables the setup of three different PWM Duty Cycle Ranges on OUT1 selected by a three position switch. The range is adjusted by trimpots P1 – P3 that correspond to the position of the select switch.

Danfoss Adapter Driver Board (Part# DFA2-C3)



DFA2 Option Board



DFA2-C3 Configuration

| DFA2 Connection | Parameter | Function | Operating Range | | | Unit |
|-------------------------|-------------------------------------|--|-------------------|-------------------|-------------------|----------------|
| | | | Min | Typ | Max | |
| Power Supply: | | | | | | |
| +12/24VDC | Supply Voltage | DFA Supply Voltage | 6 | 12, 24 | 28 | V |
| +5VDC | Input Control Device Supply Voltage | Joystick Supply Voltage | 4.75 | 5 | 5.25 | V |
| GND | Common Ground | DFA Ground, Input Control Device Ground | | | | |
| Control Inputs: | | | | | | |
| | | | $V_{IN(MIN)}$ | $V_{IN(NEUTRAL)}$ | $V_{IN(MAX)}$ | |
| IN1 | Control Input 1 | Analog Proportional Input 1 | 0.5 (+/-0.05) | 2.5 (+/-0.02) | 4.5 (+/-0.05) | V |
| IN2 | Control Input 2 | Analog Proportional Input 2 | 0.5 (+/-0.05) | 2.5 (+/-0.02) | 4.5 (+/-0.05) | V |
| Control Outputs: | | | | | | |
| | | | Duty Cycle | Duty Cycle | Duty Cycle | |
| | | | OUT(MIN) | OUT(NEUTRAL) | OUT(MAX) | |
| OUT1 | Control Output 1 | PWM Output 1 (Overall Duty Cycle Range Adjustable between 40%-60% and 20%-80%) | 20 (+/-2.5) | 50 (+/-2.5) | 80 (+/-2.5) | Duty Cycle (%) |
| OUT2 | Control Output 2 | PWM Output 2 | 20 (+/-2.5) | 50 (+/-2.5) | 80 (+/-2.5) | Duty Cycle (%) |
| Enable Outputs: | | | | | | |
| | | | Off | | On | |
| EN1 | Valve Enable Output 1 | N/A | | | | |
| EN2 | Valve Enable Output 2 | N/A | | | | |

Danfoss Adapter Driver Board DFA2-C3

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DFA-C3 Electrical Specifications

| Symbol | Parameter | Min | Typ | Max | Unit | Notes |
|---|--|---------------|---------------|---------------|----------------|---|
| DFA Power Supply: | | | | | | |
| V_S | Supply Voltage | 6 | 12 or 24 | 28 | V | Reverse Polarity and Transient Protected (*) |
| I_{SQ} | Quiescent Supply Current | 25 | 27 or 30 | 35 | mA | |
| Input Control Device Power Supply: | | | | | | |
| V_{OUT} | Input Control Device Supply Voltage | 4.75 | 5 | 5.25 | V | |
| I_{OUT} | Input Control Device Supply current | 2 | | 30 | mA | |
| Control Signal Inputs: | | Min | Neutral | Max | | |
| $V_{IN1,IN2}$ | Control Signal Input Voltage | 0.5 (+/-0.05) | 2.5 (+/-0.02) | 4.5 (+/-0.05) | V | Inputs Transient Protected |
| $V_{IL(OFF)}$ | Low Safety Shut-down Input Voltage | | <= 0.25 | | V | Input Under Voltage, Cycle Power to Reset |
| $V_{IH(OFF)}$ | High Safety Shut-down Input Voltage | | >= 4.75 | | V | Input Over Voltage, Cycle Power to Reset |
| Control Signal Outputs: | | Min | Neutral | Max | | |
| V_{OUT1} | PWM Control Signal Output Duty Cycle Range at $V_{PEAK} = V_S$ | 20 (+/-2.5) | 50 (+/-2.5) | 80 (+/-2.5) | Duty Cycle (%) | Overall Duty Cycle Range Adjustable between 40%-60% and 20%-80% |
| V_{OUT2} | PWM Control Signal Output Duty Cycle Range at $V_{PEAK} = V_S$ | 20 (+/-2.5) | 50 (+/-2.5) | 80 (+/-2.5) | Duty Cycle (%) | |
| $f_{OUT1,OUT2}$ | PWM Output Frequency | | 500 (+/-5%) | | Hz | Fixed PWM Frequency of 500Hz |
| $I_{OUT1,OUT2}$ | Control Signal Output Current | | | 10 | mA | |
| Enable Signal Outputs: | | | | | | |
| $V_{EN1,EN2}$ | Enable Signal Output Voltage | | | | | N/A |
| $I_{EN1,EN2}$ | Enable Signal Output Current | | | | | N/A |
| Environmental Specifications: | | | | | | |
| Operating Temperature Range | | | -40 to +70 | | °C | |

(*) Input transient protected up to +/- 48.4VDC @ 11.3A for pulse widths \leq 1ms.