CL-305 Product Family Specification

PFS-CL305-A2

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USING THIS DOCUMENT

The specifications contained herein represent all possible configurations for this product family. The actual configurations available on each module may be a subset of this specification. Please refer to the module-specific datasheet for the connector pinout and configurations that are available.

USER LIABILITY

The OEM of a machine or vehicle in which HED® electronic controls are installed is fully responsible for all consequences that might occur. HED®, and any authorized distributor, has no responsibility for any consequences, direct or indirect, caused by failures or malfunctions. Failure or improper selection or improper use of HED® products can cause death, personal injury and property damage.

The OEM must analyze all aspects of their application and review the information concerning product or system in the current product documentation. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by HED® at any time without notice.

INPUT STG (A06), INPUT STG/HID (B07 – B10)

Pull-up Resistance
- 560Ω (typical)

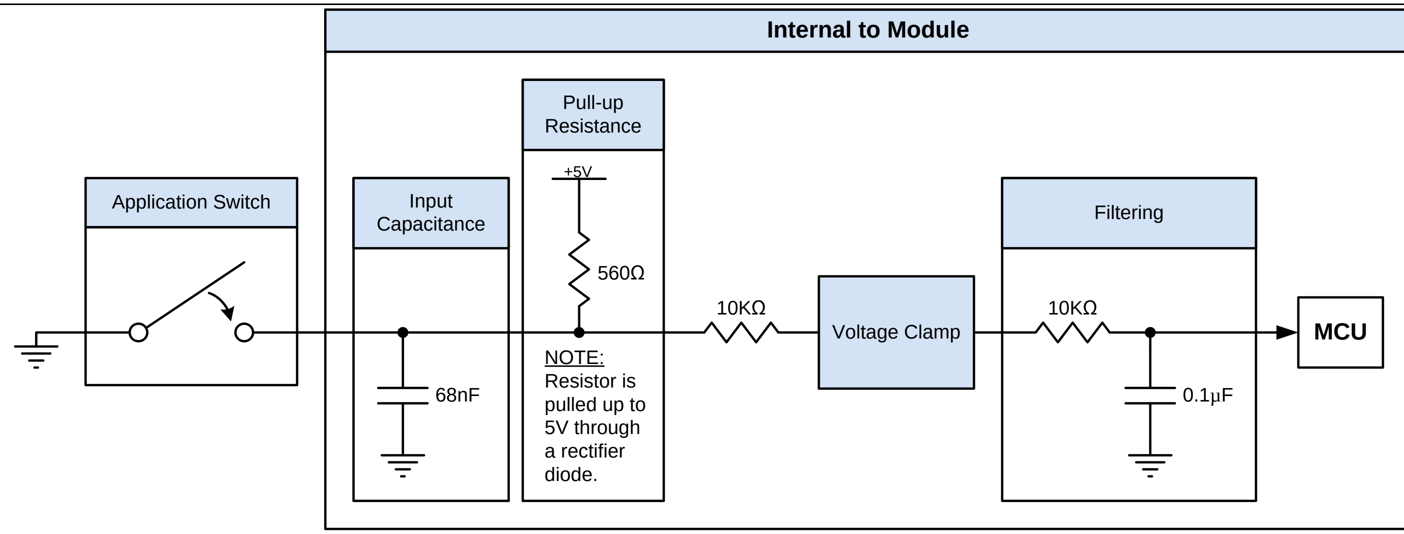
Input Current
- 7.6mA at 0V (typical)

Positive Going Threshold
- > 3.25V

Negative Going Threshold
- < 1.75V

Parallel Resistance
- 2KΩ at 0V (minimum)

Series Resistance
- 220Ω (maximum)



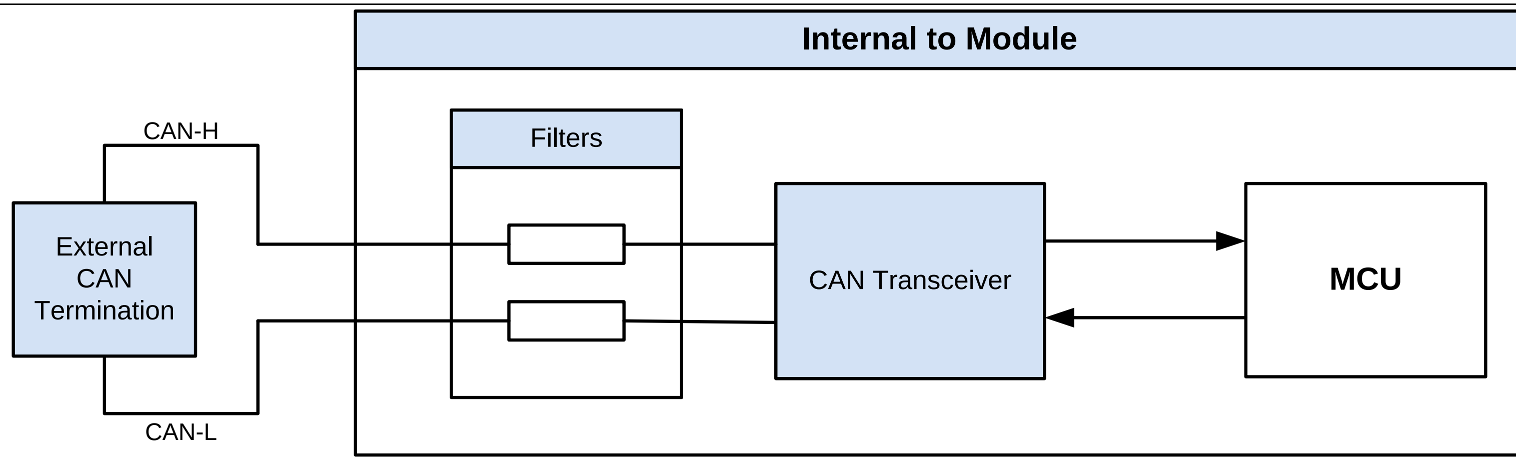
CAN COMMUNICATION (PINS A04/A05)

Baud Rate
- 40kbps to 500kbps

Maximum Allowable Voltage[1]
- -27V to +40V

Input Capacitance (maximum)
- 20pF

No Internal Termination



[1] Maximum allowable voltage defines the voltage extremes that the transceiver can tolerate. Exposure to these voltages for extended periods may affect device reliability.

OUTPUT DOUT(+)/PWM(+) (PINS A01, A08, A10, A12, B01, B03, B05, B12)[1,2]

Output Current[3]

- Digital Mode = 10.0A (max)
- PWM Mode = 10.0A (max)

PWM Frequency[4]

- < 200 Hz (typical)
- < 5 KHz (maximum)

Output Diagnostics

- Short to Battery
- Short to Ground
- Overcurrent
- Open Circuit[5]

Current Sense Range

- Up to 20.6A (minimum)
- Up to 27.0A (typical)

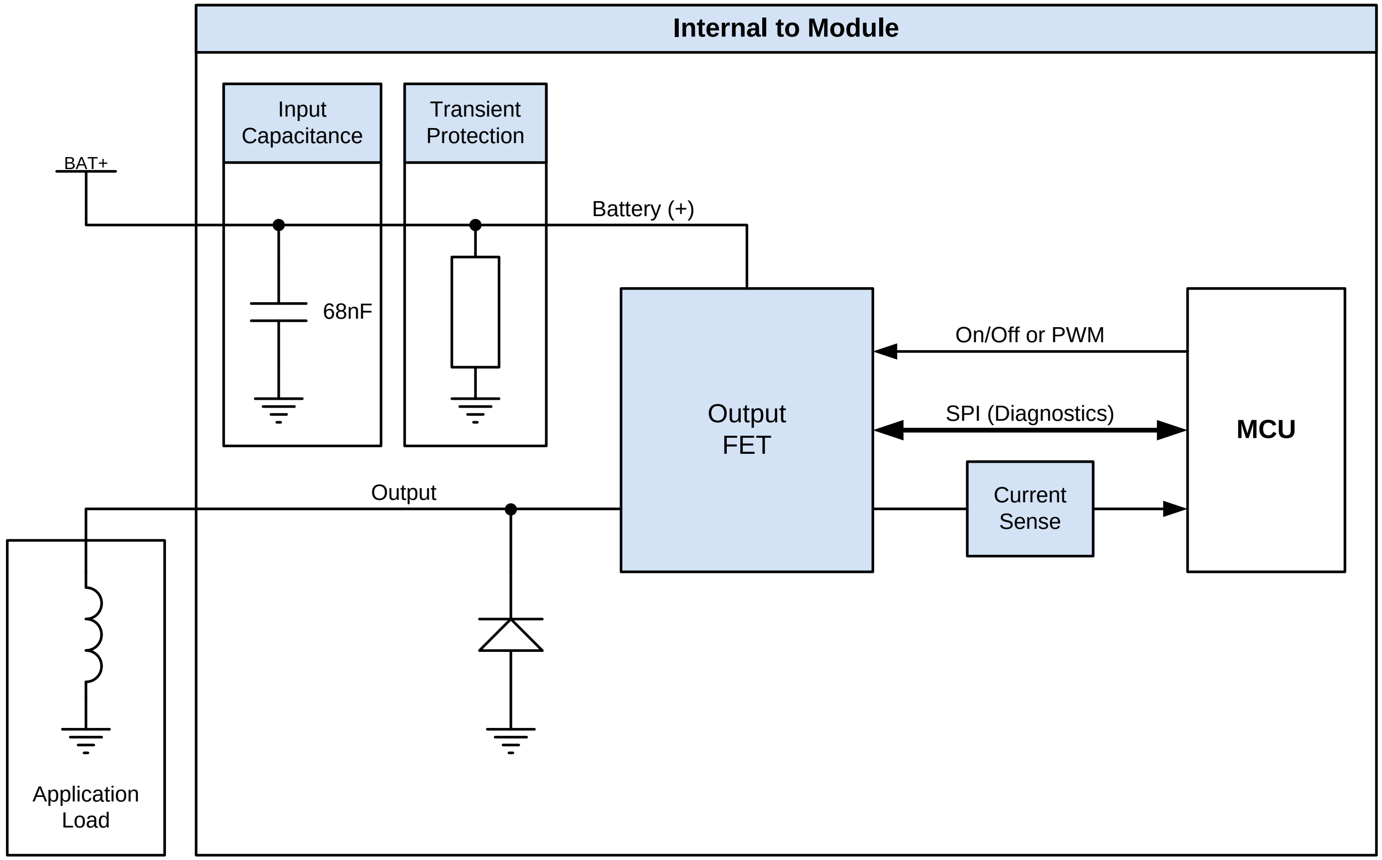
Current Sense Resolution

- 10 bits
- 26.4mA / count (typical)

Current Sense Accuracy (typical)

- < 500mA at 10A, T_A = 25°C

Internal Flyback Diodes



[1] Pin A02 is the battery supply for the Pin A01 output (also main supply for the module). Pin A07 is the battery supply for the Pin A08 output. Pin A09 is the battery supply for the Pin A10 output. Pin A11 is the battery supply for the Pin A12 output. Pin B02 is the battery supply for the Pin B01 output. Pin B04 is the battery supply for the Pin B03 output. Pin B06 is the battery supply for the Pin B05 output. Pin B11 is the battery supply for the Pin B12 output.

[2] Output circuitry may be damaged by a reverse battery condition. Application should ensure a reverse battery condition does not occur at the module.

[3] PWM outputs assume 200Hz frequency.

[4] The output driver is best suited for PWM frequencies of 200 Hz or less. PWM frequencies of up to 5 KHz are possible, but at reduced output current and duty cycle range.

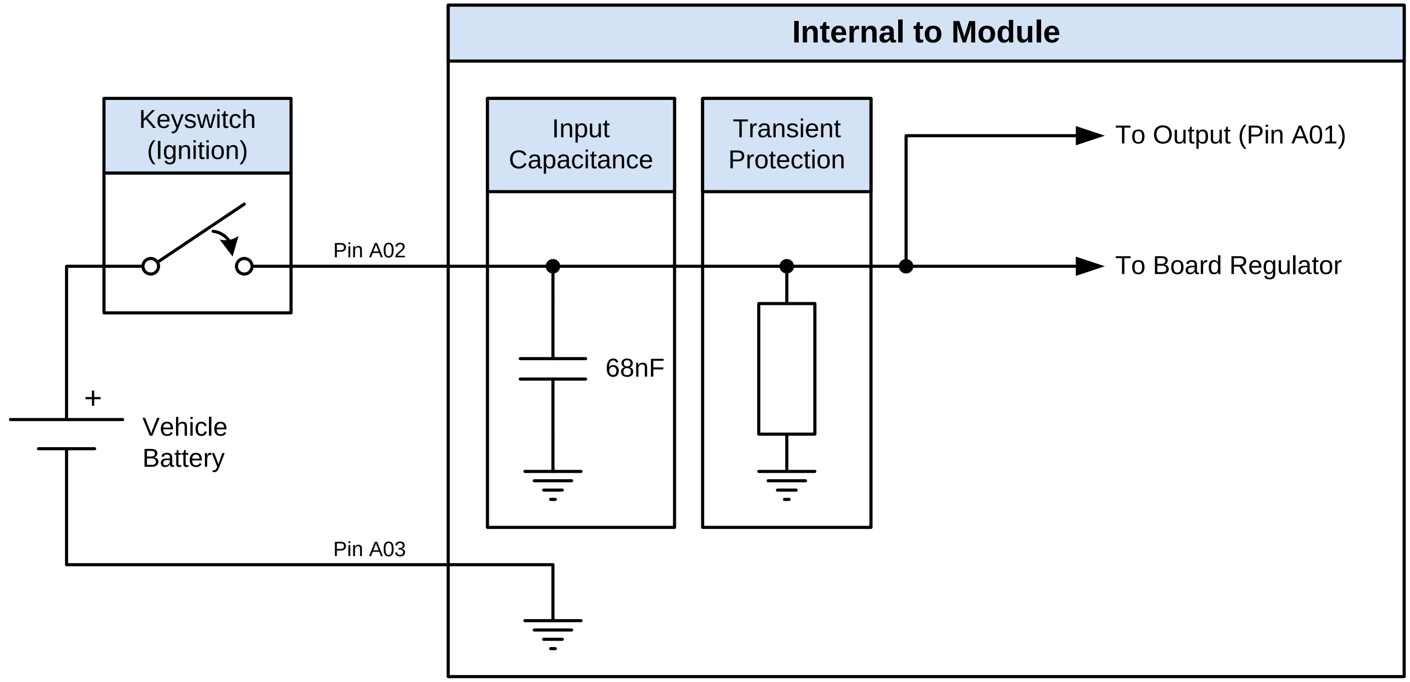
[5] Open circuit can optionally be detected when the output is inactive for loads that are not influenced by the associated pull-up current. The open load detection current is in the range of 30 to 100µA. This feature can be enabled / disabled by the user application. When open-circuit detection is disabled, the short-to-battery diagnostic is also disabled.

BATTERY (+) MODULE (PIN A02)[1]

Operating Voltage Range
- 8VDC – 32VDC

Maximum Continuous Voltage[2]
- 36VDC

Module Current Draw[3]
- 39mA at 8.0V (typ)
- 27mA at 13.8V (typ)
- 20mA at 28.0V (typ)
- 19mA at 32.0V (typ)



[1] Pin A02 provides power to module and the output on Pin A01.
[2] Exposure to maximum voltages for extended periods may affect device reliability.
[3] Module current draw is measured with I/O inactive, and no CAN communication.

ADDITIONAL NOTES

IMPORTANT: Module configurations that contain sourcing outputs with internal flyback diodes may continue to operate in the event of a loss of module ground. This event can result in a ground shift to the internal board reference (ground). The ground shift is a result of a remaining current path from internal board reference (ground), through internal flyback diode(s), and terminating through an external load to ground (assuming the load is of relatively low resistance). Depending on system configuration and load resistances, analog input accuracy can be affected, especially if the analog sensor is not referenced to the module sensor ground. Be sure to include this condition when conducting a system-level FMEA.

REVISION HISTORY

Revision	Date	EC #	Changes
A1	10/22/14	314-412	Initial Release.
A2	7/15/15	315-246	Added switching thresholds to STG/HID inputs. Added note regarding loss of ground event.