CL-104 Product Family Specification

PFS-CL104-A1

7/23/2015

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)

Pull-up Resistance
- 470Ω (typical)

Input Current
- 9.0mA at 0V (typical)

Positive Going Threshold
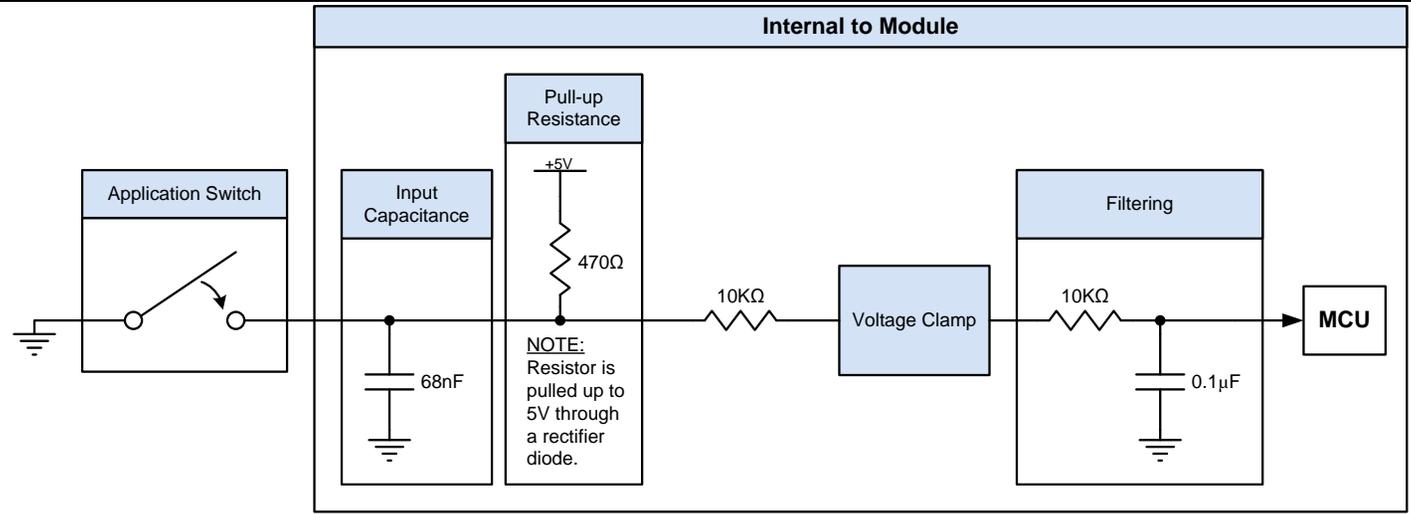- > 3.25V

Negative Going Threshold
- < 1.75V

Parallel Resistance
- 2KΩ at 0V (minimum)

Series Resistance
- 220Ω (maximum)

Internal to Module

Application Switch

Input Capacitance

68nF

Pull-up Resistance

+5V

470Ω

NOTE: Resistor is pulled up to 5V through a rectifier diode.

10KΩ

Voltage Clamp

Filtering

10KΩ

0.1μF

MCU

CAN COMMUNICATION (PINS A07/A08, A09/A10)

Baud Rate
- 40 Kbps to 500 Kbps

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

Input Capacitance (maximum)
- 20pF

No Internal Termination
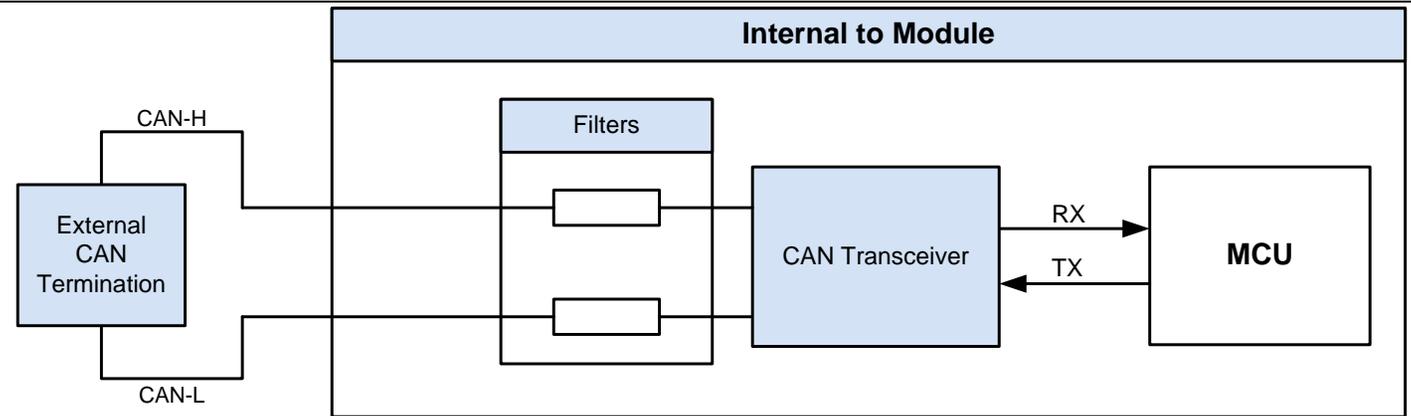
Internal to Module

CAN-H

External CAN Termination

Filters

CAN Transceiver

RX

TX

MCU

CAN-L

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[1] Maximum allowable voltage defines the voltage extremes that the transceiver can tolerate. Exposure to these voltages for extended periods may affect device reliability.
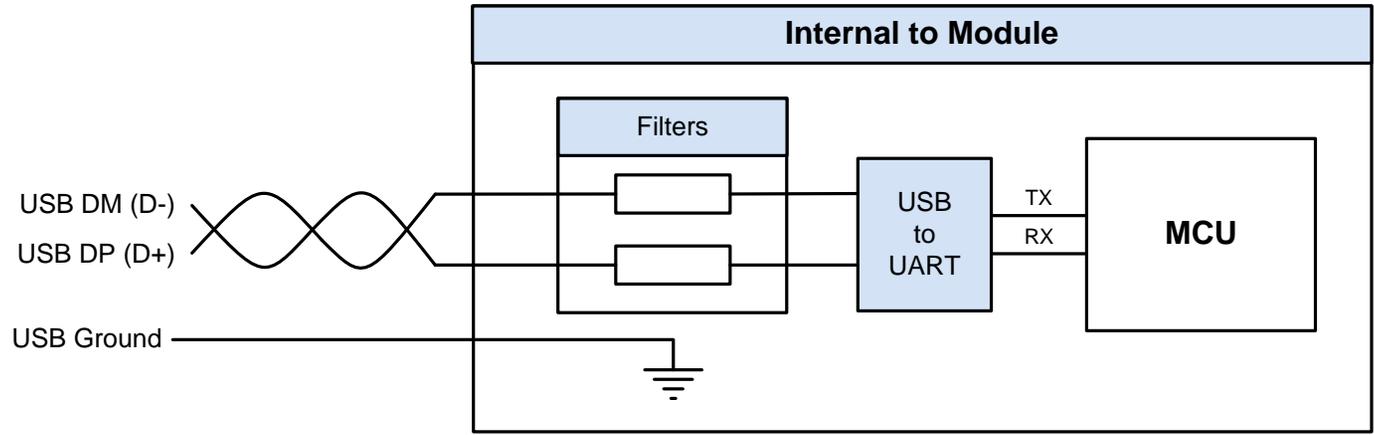
USB-TO-UART SERIAL COMMUNICATION (PINS A01/A02, A03)

USB Standard
- USB 2.0

Serial Baud Rate
- Up to 115.2 Kbps

Internal to Module

Filters

USB DM (D-)
USB DP (D+)

USB Ground

USB to UART

TX
RX

MCU

RS232 COMMUNICATION (PINS A04/A05, A03)

Baud Rate
- Up to 115.2 Kbps

Maximum Allowable Voltage[1]
- -30V to +30V (RS232 RX)
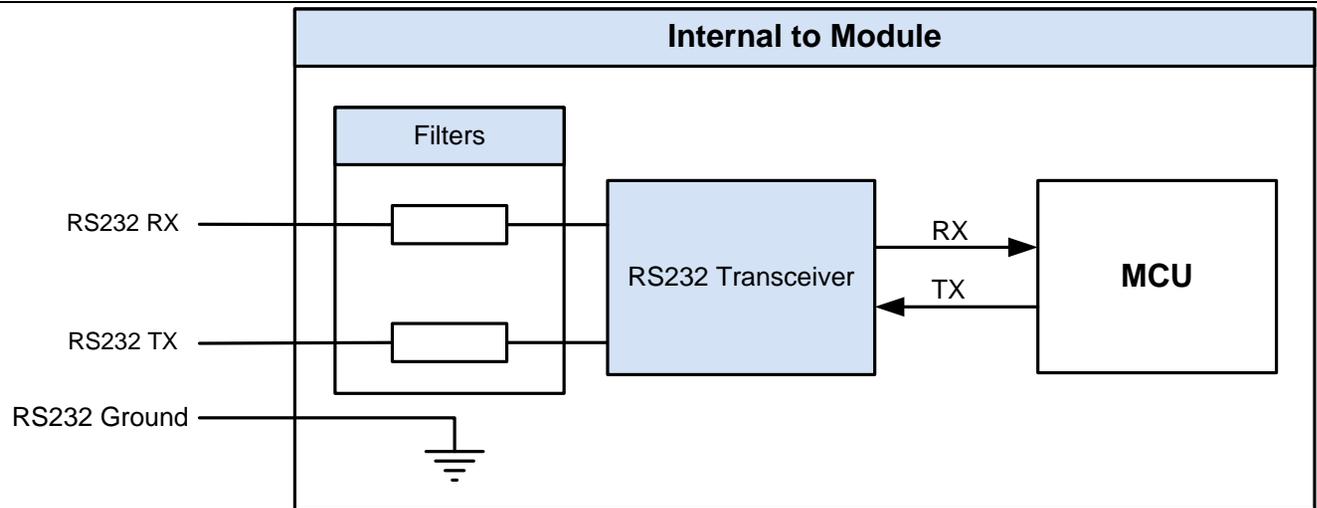- -15V to +15V (RS232 TX)

Input Threshold Low
- < 0.4V

Input Threshold High
- > 2.4V

Output Voltage Swing
- ± 5.0V (min)
- ± 9.0V (typ)

Internal to Module

Filters

RS232 RX

RS232 TX

RS232 Ground

RS232 Transceiver

RX
TX

MCU

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

BATTERY (+) MODULE (PIN A12) AND UNSWITCHED BATTERY (+) (PIN A06)[1]

Battery (+)

Operating Voltage Range
- 8VDC – 32VDC

Maximum Continuous Voltage[2]
- 36VDC

Module Current Draw[3]
- 104mA at 8.0V (typ)
- 58mA at 13.8V (typ)
- 31mA at 28.0V (typ)
- 28mA at 32.0V (typ)

Analog Monitoring Circuit

Input Voltage Range
- 0V to 33.98V (minimum)
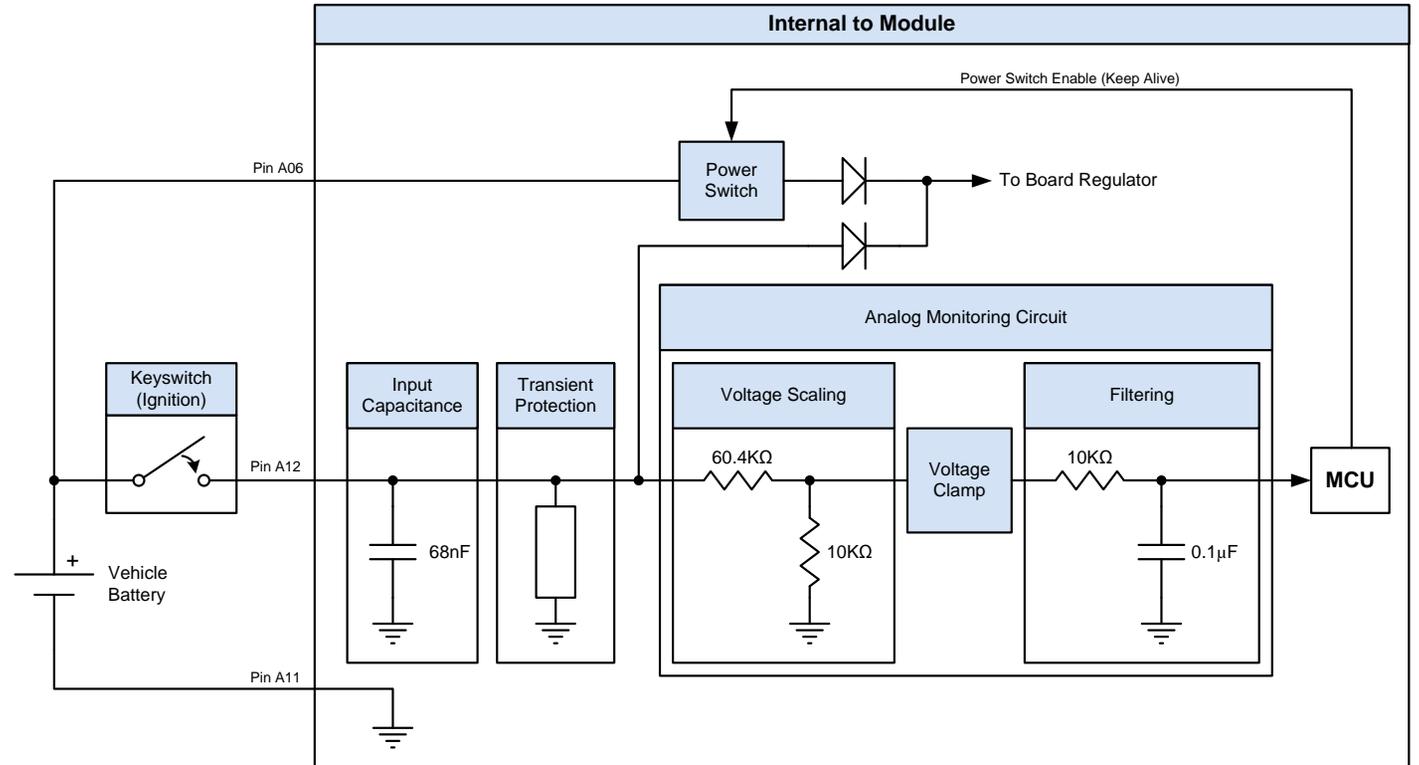- 0V to 35.20V (typical)

Input Resistance
- 70.4KΩ (typical)

Resolution
- 10 Bits
- 34.38mV / count (typical)

Accuracy[4]
- ±5.0% and ±70mV (T_A = 25°C)
- ±7.0% and ±450mV (T_A = Full)

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[1] The block diagram shown represents one possible implementation in the system. Other implementations may be used based on system requirements.

[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, USB, or RS232 communication.

[4] VTD accuracy is estimated using datasheet maximums and a weighted average of worst-case and root-sum-square (RSS) methods. It is considered as a percentage of the input voltage combined with an additional offset.

REVISION HISTORY			
Revision	**Date**	**EC #**	**Changes**
A1	7/23/15	315-245	Initial Release