



The CL-449 is a solid-state microprocessor based module and member of the HED<sup>®</sup> CANLink<sup>®</sup> multiplexed control family. Delivered in a potted enclosure, this unit provides a flexible I/O count in a compact and economical package.

The CL-449 is designed for use as a multi-purpose stand alone unit or as a master controller or I/O module in a distributed system.

The HED<sup>®</sup> CL-449 can be programmed using HED<sup>®</sup>'s do-it-yourself CANLink<sup>®</sup> Composer<sup>™</sup> programming tool or directly by HED<sup>®</sup> engineering, and is designed for use with the CANLink<sup>®</sup> Conductor<sup>™</sup> software tool for diagnostics and field troubleshooting.

## CANLink<sup>®</sup> CL-449-101-XX Module

### w/ 5VDC Sensor Supply

**CL-449-101-11 : Master I/O**

**CL-449-101-21 : Client I/O**

**CL-449-101-31 : J1939 Client**

### 4 Outputs and up to 6 Inputs (6 total I/O):

- (2) Inputs software configurable as switch to battery, switch to ground, 12-bit analog, Frequency, PWM or Quadrature Encoder.
  - Analog standard range is 0-5.64VDC. Other ranges are possible, but are set at HED. Contact HED for info.
  - Frequency max is 10KHz at 50% duty cycle
- (4) pins software configurable as 2A PWM outputs with estimated current feedback or switch to battery input
  - or 2.5A digital outputs (software configurable as PWM or Digital)
- Client Harness Codes\* are set in EEPROM. Default is 0x0F (15)
  - ID can be changed via CAN message (see page 2)
- (1) J1939 CAN port

### Specifications

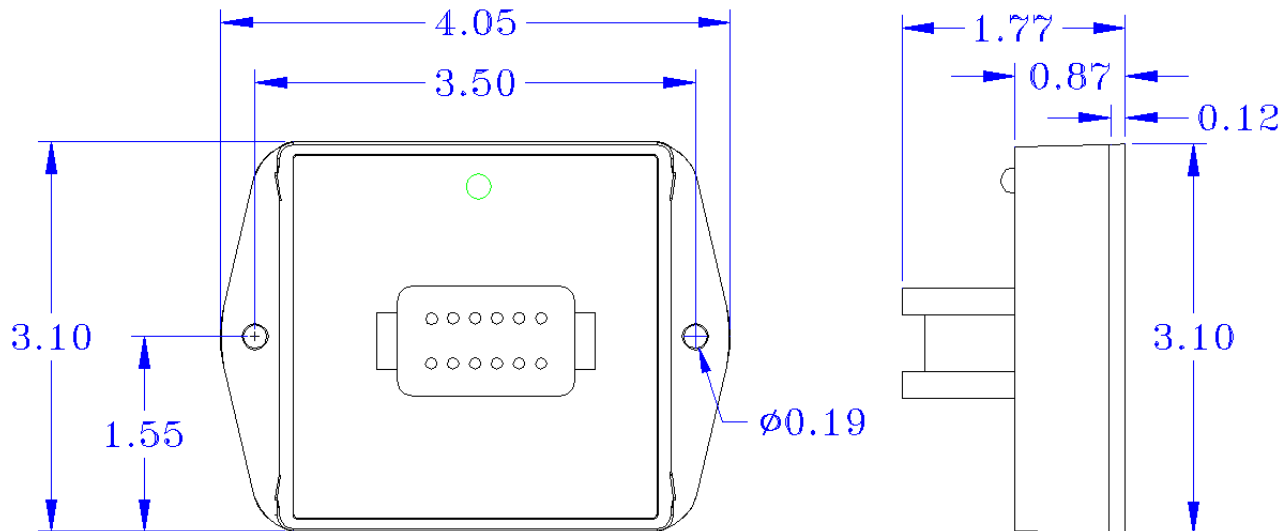
|                               |  |
|-------------------------------|--|
| Enclosure:                    | Noryl plastic enclosure filled with potting  |
| Mating Connectors:<br>Deutsch | DT06-12SA<br>W12S (wedge) – one per connector required<br>0462-201-16141 16AWG sockets<br>114017 Sealing Plugs – Unused pins are required to be sealed to maintain module sealing  |
| Operating Voltage Range:      | 8-32 VDC   |
| Operating Temperature:        | -40°C to 70°C  |
| Storage Temperature:          | -40°C to 85°C  |
| IP Rating:                    | IP67   |
| PC Boards:                    | The printed circuit boards are designed for high EMI/RFI protection.<br>The boards are conformal coated with a silicone coating for further water/moisture protection.<br>All inputs and outputs are protected against shorts to Battery(+) or Battery(-).<br>100% of the boards are functionally tested before shipment.<br>* Harness Codes are used to identify I/O module location and function to the master controller. |

## CL-449-101-XX Module

| DTF15-12PA |  |
|------------|--|
| Pin        | Function   |
| 1          | Input #1 STB/STG/VTD(0-5.64VDC)/FREQ/PWM/Encoder(1A)*                        |
| 2          | Input #2 STB/STG/VTD(0-5.64VDC)/FREQ/PWM/Encoder(1B)*                        |
| 3          | 5VDC Sensor Supply / Input #3 Sensor Supply Voltage                          |
| 4          | 5VDC Sensor Supply Ground / Input #4 Ground Voltage                          |
| 5          | CAN1-L   |
| 6          | CAN1-H   |
| 7          | Input #6 STB / Output #1 DOOUT(+)/PWM(+)/ECC/(+)(2.5A)                       |
| 8          | Input #7 STB / Output #2 DOOUT(+)/PWM(+)/ECC/(+)(2.5A)                       |
| 9          | Input #8 STB / Output #3 DOOUT(+)/PWM(+)/ECC/(+)(2.5A)                       |
| 10         | Input #9 STB / Output #4 DOOUT(+)/PWM(+)/ECC/(+)(2.5A)                       |
| 11         | BAT(-) Module  |
| 12         | BAT(+) Module and Outputs 1-4 /<br>Input #5 Battery Voltage VTD (0-32.78VDC) |

Note: Above pinout is for HED modules with part number formats of CL-449-101-XX.  
Additional part number data sheets available on HED® website.

\* Note: Early versions of Composer™ require input to be configured as Pulse Counter when using Encoder input feature. If Composer does not show Encoder as available option to configure input, select one of Encoder pins to be Pulse Counter and this will configure two paired inputs as Encoder. Second pin does not need to be configured as anything, but can be configured as FREQ if application also requires the frequency of the Encoder. Both A & B signals from Encoder are required to be connected to pins 1A and 1B.



### Setting Harness Code in EEPROM:

- Transmit the following message to change Harness Code.
  - KK = old Harness Code
  - HH = new Harness Code
  - MMMM = Module ID = 0x0105 (261)

|          |    |    |    |    |    |    |    |    |
|----------|----|----|----|----|----|----|----|----|
| 00EF0002 | MM | MM | KK | 00 | 84 | 00 | 00 | HH |
|----------|----|----|----|----|----|----|----|----|

To verify new Harness Code has been set:

- Cycle power to module.
- Below message is sent by module on power-up.
  - HH = new Harness Code

|          |    |    |    |    |    |    |    |    |
|----------|----|----|----|----|----|----|----|----|
| 00EF0001 | -- | -- | -- | HH | -- | -- | -- | -- |
|----------|----|----|----|----|----|----|----|----|

### J1939 Client:

- Default Node ID is: 0x80
- Reference HED J9193 Document for CAN message used to change Node ID.