Hydro Electronic Devices, Inc.

Technical Data Sheet

CANLink® CL-712-100-xx Display

10.1” Color Display

CL-712-100-10-001 : Master
CL-712-100-10-031 : Master w/ Touch Screen
CL-712-100-20-001 : Client
CL-712-100-20-031 : Client w/ Touch Screen
CL-712-100-00-001 : Open Platform
CL-712-100-00-031 : Open Platform w/ Touch Screen

The CL-712 is a solid-state Cortex A8 ARM microcontroller based display and member of the HED® CANLink® multiplexed control family. Delivered in a plastic enclosure, this unit provides communication messages to the end-user.

The CL-712 is designed for use as a stand alone unit or as part of a distributed system.

The HED® CL-712 can be programmed using HED®’s do-it-yourself CANLink® Arranger™ programming tool or directly by HED® engineering. The dual processor design allows for immediate CAN communication on power-up for communication with other CAN modules in the system.

Features:

- Open Platform allows for Qt Lite programming environment
- Sealed enclosure for external mounting
- Panel and RAM mount capable
- Sunlight readable 10.1” TFT Color IPS LCD display
- IPS LCD for
- WXGA 1280x800 pixel format (217.0mm x 135.6mm)
- LED Backlight with 1000 cd/m^2 (nits) brightness
- Cortex A8 ARM Microprocessor running at 800MHz
- 8GB eMMC FLASH (option for 16GB, 32GB – with minimum order required)
- 512MB DDR3 RAM (option for 1GB – with minimum order required)
- Real Time Clock with Internal Battery (15 year life - typical)
- 4 Video inputs. NTSC & PAL supported.
- Video Window location and size are programmable with graphics sharing remainder of screen
- Graphics can be drawn over top of video window
- Dual processor allows for CAN communication immediately on power-up
- Navigation key for easy menu manipulation
- Touch Screen (optional)
- Ambient light sensor
- Low Power Sleep Mode with Wake-Up by following methods: Digital Input on Connector, CAN Traffic, Time set by software using Real Time Clock

I/O Available:

- (1) USB Host (capable of supplying up to 250mA to device)
  - Allows for software updates directly from USB Memory Device
- (1) USB Client (for interfacing to HED software tools)
- (1) Ethernet 10/100 Base-T (only available in open platform programming)
- (2) J1939 CAN ports
- (12) Connector pins of I/O, including switch to ground, switch to battery, analog, frequency, PWM, Encoder inputs or sourcing outputs.
- (1) 5VDC Sensor Supply (250mA)

Specifications	
Mating Connectors:	Deutsch DT16-18SA-K004 (for Power, CAN and I/O) RAMCO M12 4 & 8 pin Female (for USB, Video) (or other manufacturer of IP67 sealed M12 connector)
Operating Voltage:	8 to 32 VDC
Operating Temperature:	-40°C to +70°C (12VDC w/ all I/O active) -40°C to +70°C (24VDC w/ No I/O active) -40°C to +65°C (24VDC w/ 2 Outputs & 2 STB Inputs active) -40°C to +60°C (24VDC w/ all I/O active) * Graphic updates are slower for first 5 minutes if cold start at temperatures below -30°C.
Storage Temperature:	-40°C to 80°C
IP Rating:	IP67

CANLINK®

Toll-free technical support: (800) 854-3533

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Specifications

Deutsch 18-Pin DT	
Pin	**Function**
1	Output #1 DOUT/PWM/ECC/(+)(2A) / Input #45 STB/STG
2	Output #2 DOUT/PWM/ECC/(+)(2A) / Input #46 STB/STG
3	Output #3 DOUT/PWM/ECC/(+)(2A) / Input #47 STB/STG
4	Output #4 DOUT/PWM/ECC/(+)(2A) / Input #48 STB/STG
5	Battery(-)
6	Unswitched Battery(+)** / Input #9 Battery Voltage
7	CAN1-H
8	CAN1-L
9	Input #1 STB/STG/VTD(0-5.6V)/FREQ/PWM/Encoder1(Freq) /RTD(0-500ohm)
10	Input #2 STB/STG/VTD(0-5.6V)/FREQ/PWM/Encoder1(Direction) /RTD(0-2Kohm)
11	Input #3 STB/STG/Wake-Up
12	Input #4 STB/STG/VTD(0-5.6V)
13	CAN2-L
14	CAN2-H
15	Input #5 STB/STG/VTD(0-5.6V)/FREQ/PWM/Encoder2(Freq)
16	Input #6 STB/STG/VTD(0-5.6V)/FREQ/PWM/Encoder2(Direction)
17	Input #7 STB/STG/VTD(0-5.6V)
18	Input #8 STB/STG/VTD(0-5.6V)

Note: Different I/O combinations may be available. Please refer to specific CL-712-1xx-xx data sheet for I/O number designations for use within Composer™. Data sheets available on HED® website.

**Unswitched vehicle battery must be connected for controlled shutdown to properly store data to EEPROM, and for Lower Power Sleep and Wake-Up to function properly. Display will draw <1mA after turning itself off.

Composer Input Assignments for Real Time Clock (RTC) Items		
RTC Item	**Composer Input #**	**Valid Data Range**
Year	Input #19 VTD (0-5000mV)	0 – 255 (1900 – 2155)
Month	Input #20 VTD (0-5000mV)	0 – 11
Day of Month	Input #21 VTD (0-5000mV)	1 – 31
Day of Week	Input #22 VTD (0-5000mV)	0 – 6
Hour	Input #23 VTD (0-5000mV)	0 – 23
Minute	Input #24 VTD (0-5000mV)	0 – 59
Second	Input #25 VTD (0-5000mV)	0 – 59

Note: RTC values are not able to be set (changed) with Ladder Logic. It is able to be set with Presto.

Setting Client Harness Code in EEPROM:

1. Transmit the following message to change Harness Code.
   a. KK = old Harness Code
   b. HH = new Harness Code
   c. MM = Module ID = 0x011D (285)

00EF0002	MM	MM	KK	00	84	00	00	HH

To verify new Harness Code has been set:

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

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

Note: If Client device has already established communication with CANLink Master, device will not respond to this CAN message to set Harness Code.

Button Press Inputs	
Button #	**Composer Input #**
1*	Input #10 STG
2	Input #11 STG
3	Input #12 STG
4	Input #13 STG
Nav Key (Left)	Input #14 STG
Nav Key (Right)	Input #15 STG
Nav Key (Top)	Input #16 STG
Nav Key (Bottom)	Input #17 STG
5	Input #18 STG
6	Input #50 STG
7	Input #51 STG
8	Input #52 STG
9	Input #53 STG

* Note: Button 1 is top-left button, button 6 is top-right. Buttons 1-5 down left side, buttons 6-9 down right side.

LCD and Button Backlights		
Function	**Composer Output #**	**Recommended Frequency**
Button	Output #5 DOUT(+)/PWM(+)	250 Hz
Backlight	Output #6 DOUT(+)/PWM(+)	6 kHz

Note: For proportional control of Backlight, the output should be configured as PWM. Digital control would only allow for Off and Full On control.

Ambient Light Sensor		
Function	**Composer Input #**	**Valid Data Range**
Ambient Light Sensor	Input #26 VTD (0-4095mV)	0 – 4095

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Specifications

Connector	Function	Mating Connector Type	Key
A	Ethernet (open platform only)	M12 Female – 4 pin – Gold contacts	D
B	Not Used	N/A	A
C	USB Client	M12 Female – 4 pin – Gold contacts	A
D	Not Used	N/A	A
E	USB Host	M12 Female – 4 pin – Gold contacts	A
F	Video Inputs - #1 & #2	M12 Female – 4 pin – Gold contacts	B
G	Video Inputs - #3 & #4	M12 Female – 4 pin – Gold contacts	B

Ethernet Connector

"A" – M12 (D-Key)	
Pin	**Function**
1	TXP
2	RXP
3	TXN
4	RXN

USB Client Connector

"C" – M12 (A-Key)	
Pin	**Function**
1	USB (Power)
2	USB (DM)
3	USB (DP)
4	USB (Ground)

USB Host Connector

"E" – M12 (A-Key)	
Pin	**Function**
1	USB (Power)
2	USB (DM)
3	USB (DP)
4	USB (Ground)

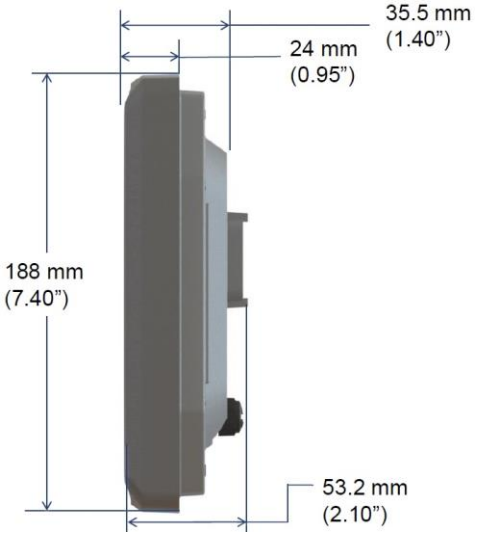
Video #1 & #2 Connector

"F" – M12 (B-Key)	
Pin	**Function**
1	Ground
2	Ground
3	Video #1
4	Video #2

Video #3 & #4 Connector

"G" – M12 (B-Key)	
Pin	**Function**
1	Ground
2	Ground
3	Video #3
4	Video #4

Dimensions for reference only:



RAM Mount option:

National Products, Inc.
www.rammount.com
Part Number: RAM-2461U

Use size 10-24 x 0.500" long fasteners.

Torque to 30-40 in-lbs

Fasteners should have max depth of 0.280" and min depth of 0.220" into display.

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