-shown with optional basic bezel

PHD50
Parker Hannifin Display 5.0”

Catalog MSG33-5022/US

Parker

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Application

The PHD50 is one of a family of general purpose displays for vehicle instrumentation. The display can be supplied with an optional standard bezel. The end user can customize the PHD50 with their own custom bezel and by creating custom application software. By incorporating the new display, a wide range of industrial vehicles can be operated more efficiently for greater productivity.

Properties

Features

The PHD50 display has a rugged mechanical design with no moving parts, and is sealed against dust and water ingression. The display is also designed to withstand extended temperatures, high vibration and EMC/EMI conditions found on today's mobile equipment.

The versatile PHD50 display has a pleasing, aesthetic design that blends into modern vehicle cabs. A capacitive touchscreen interface offers interactive, intuitive HMI. If desired, the general purpose IO may be configured for a 3x4 matrix keypad or buttons.

The PHD50 supports J1939 and CANopen CAN communication interfaces. The PHD50 has 10 configurable inputs. 8 of the inputs have flexible usage as digital inputs or 0-5V analog inputs. There are 2 frequency inputs. For outputs, the PHD50 has 2 low-side outputs that are rated for a maximum current of 500 mA; 1 output has pulse width modulation capabilities. Low-side outputs have analog feedback which provides open circuit, short to battery, and short to ground detection. Additionally, all 10 PHD50 inputs may be re-purposed as low voltage, high-side outputs.

Mounting is easy, with steel clips or screw tabs, for a flush mount in dash panels. The PHD50 may be mounted in landscape or portrait orientation for easy integration into your machine's HMI design.

Reliability

The PHD50 is ideal for various industrial and off-road vehicle applications, with a 5.0", TN twisted-nematic color LCD, 800 x 480 pixel screen with dimmable backlight. The enclosure is designed to be used in outdoor environments, and has been tested to a suitable mix of standards based on the J1455, ISO, and EP455 environmental specifications. The 2 connectors are a rugged, environmentally sealed, Molex MX150 type.

General

Weight	312 g
Temperature range	
- Operating, ambient	-40[1] to +70°C
- Storage, ambient	-40 to +85°C
Protection	IP65 (back), IP69K (front)
Voltage supply	9 - 32 Vdc
Current (standby)	<10 mA (12Vdc)
Performance	
Processor	Vybrid VF5xxR (Cortex-A5 core)
Memory	32 MB Flash
	128 MB DDR3
Operating system	Linux
Software tools	Crank Storyboard (graphics)

Communication

CAN (J1939/CANopen)	1 (Wake on CAN)
USB	1 Host or Device (default)

Outputs

Power out (sensor supply)	3
- Type	high-side switch
- Max load	500 mA
- Voltage	2x 5 Vdc (1 intended for USB)
	1x 12 Vdc (derated < 13.3 V)
Digital out, low-side	2 (1 may be PWM)
- Max load	500 mA
- Max PWM frequency	200 Hz
Digital out, high-side	up to 10[2]
- Max voltage	4.3 Vdc
- Max load	5 mA

Inputs

Configurable inputs	10[2]
- digital, active-high	up to 8[3]
signal high	4 - 32 Vdc
signal low	0 - 1 Vdc
- analog, 0-5 Vdc	up to 8[3]
- encoder/pulse	up to 2
Video inputs	
- NTSC/PAL	1

Connector

Type	Molex MX150, key A & B

1 Some contrast degradation and slower response will be seen on the LCD at temperatures below -20°C.

2 The inputs and high-side outputs share the same physical pins. By configuring the pins with software, the user defines the pins as digital inputs, analog inputs or high-side outputs.

3 Selectable inputs are able to be defined as 'wake-up' inputs.

Ordering part numbers

PHD50	1041003ECD
Basic bezel	1041503ECD
Connector kit	1041050ECD

Parker Hannifin Canada
Electronic Controls Division
Winnipeg, Manitoba, Canada

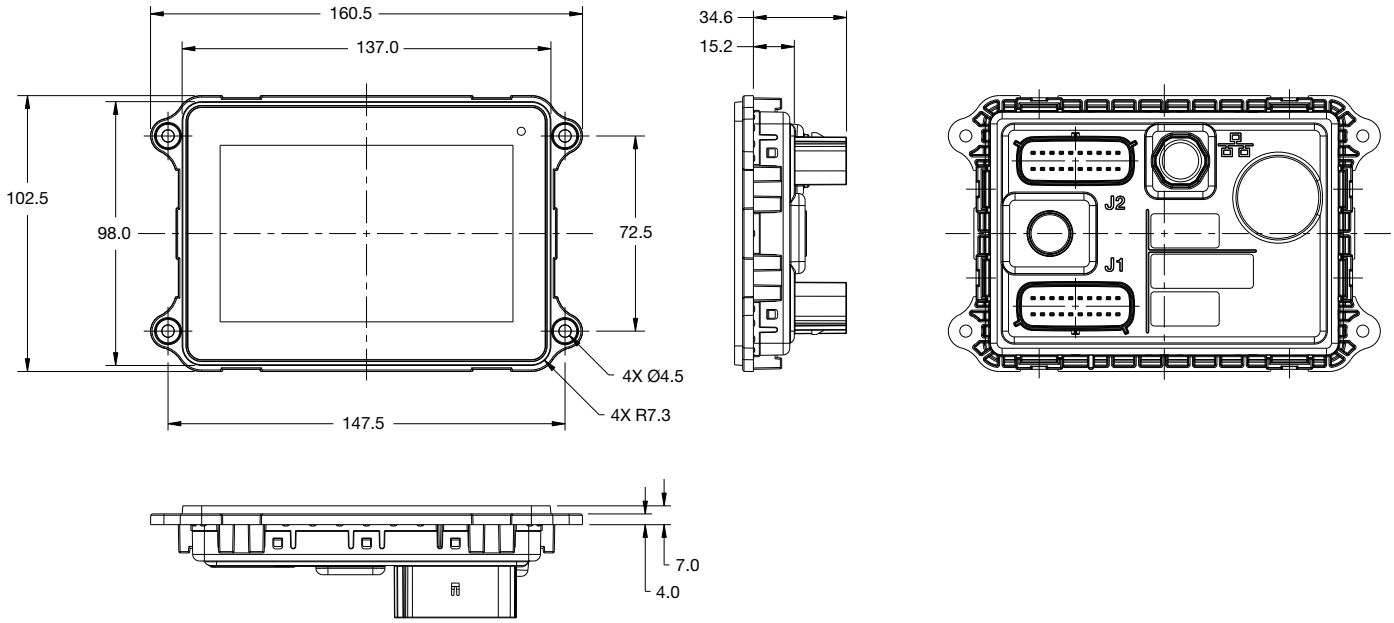
Environmental protection

EMI
J1455 Section 4.13.1, Over-voltage
J1455 Section 5.10.3, Reverse polarity
J1455 Section 5.10.4, Short circuit
ISO7637 Section 5.6.x, EP455 Section 5.11.x, Transients
ISO14982, EMC emissions
ISO14982, EMC susceptibility

Mechanical environment
BS EN7691 Section 6.6.1, Random vibration
EP455 Section 4.11.3.1, Drop test

ESD
EN61000-4-2, Surface and connectors

Climate environment
IEC 60529 Section 14.2.5, Water IP65
IEC 68-2-5,UV exposure
IEC 68-2-2 Section 4, High temperature
IEC 68-2-1 Section 2, Low temperature
EP455 Section 5.1.1, Temperature cycle
J1455 Section 4.1.3.2, Temperature shock
EP455 Section 5.13.2, Humidity soak
EP455 Section 4.3.2, Humidity cycle
MIL_STD 202G M101E-A, Salt spray



units=mm

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MSG33-5022/US 10/2019

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