



-shown with optional basic bezel

PHD28 Parker Hannifin Display 2.8"

Catalog MSG33-5021/US



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Application

The PHD28 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 PHD28 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 PHD28 display has a rugged mechanical design with no moving parts, and is sealed against dust and water ingress. The display is also designed to withstand extended temperatures, high vibration and EMC/EMI conditions found on today's mobile equipment.

The versatile PHD28 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 PHD28 supports J1939 and CANopen CAN communication interfaces. The PHD28 has 7 configurable inputs. The inputs have flexible usage as digital inputs or 0-5V analog inputs. For outputs, the PHD28 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, 5 of the PHD28 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 PHD28 may be mounted in landscape or portrait orientation for easy integration into your machine's HMI design.

Reliability

The PHD28 is ideal for various industrial and off-road vehicle applications, with a 2.8", TN twisted-nematic color LCD, 320 x 240 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 20 pin connector is a rugged, environmentally sealed, Molex MX150 type.

General

Weight	142 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	16 MB Flash, 256 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)	2
- Type	high-side switch
- Max load	500 mA
- Voltage	1x 5 Vdc, 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 5 ²
- Max voltage	4.3 Vdc
- Max load	5 mA

Inputs

Configurable inputs	7 ^{2,3}
- digital, active-high	up to 7
signal high	4 - 32 Vdc
signal low	0 - 1 Vdc
- analog, 0-5 Vdc	up to 7

Connector

Type	Molex MX150, key B
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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

PHD28	1040002ECD
Basic bezel	1040503ECD
Connector kit	1040050ECD

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

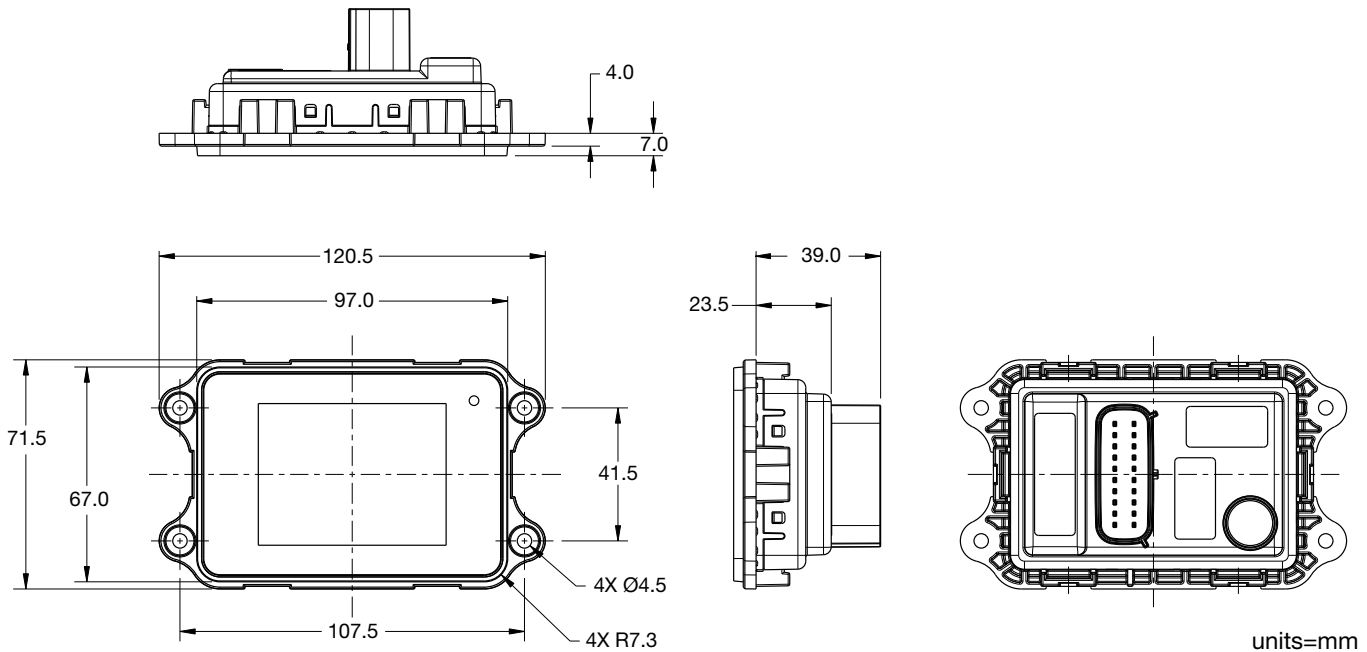
- BS EN7691 Section 6.6.1, Random vibration
- EP455 Section 4.11.3.1, Drop test

ESD

- EN61000-4-2, Surface and connectors

Climate environment

- IEC 60529 Section 14.2.5, Water IP65
- IEC 60068-2-5 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




WARNING - USER RESPONSIBILITY

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