PowerVision® P70

Installation Manual

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To consistently bring you the highest quality, full-featured products, we reserve the right to change our specifications and designs at any time. The latest version of this manual can be found at enovationcontrols.com.

WARNING

BEFORE INSTALLING THIS ENOVATION CONTROLS PRODUCT:

Read and follow all installation instructions.

Please contact Enovation Controls immediately if you have any questions.

This product can expose you to chemicals including lead, which is known to the State of California to cause cancer. For more information, go to www.P65Warnings.ca.gov.

Revision Table			
Date	**Description**	**Date**	**Description**
2023-10-06	First Draft		
2023-10-24	Released to web page		

Table of Contents

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Hardware Installation

The following instructions will guide you through installing the PowerVision® P70 display.

Inspecting Package Contents

Before installing the product, it is recommended that you ensure all parts are accounted for and inspect each item for damage (which sometimes occurs during shipping). The items included in the box are:

- 1 PV70 7" Display

Hardware needed
- Four (4) 8-32 Fasteners

Tools needed:
- Rotating drill with a bit size of 3/16-inch.

This product is protected by a 25A fuse. Replace only with a similar style 25A fuse.

Fuse Type / Ratings

Littelfuse® Fuses Rated 32V, 25A

Developed by Littelfuse for the automotive industry, the ATOF® fuse has become the original equipment circuit protection standard for foreign and domestic automobiles and trucks. Readily identifiable and easily replaced, this fuse can be specified for a variety of low voltage electronic applications.

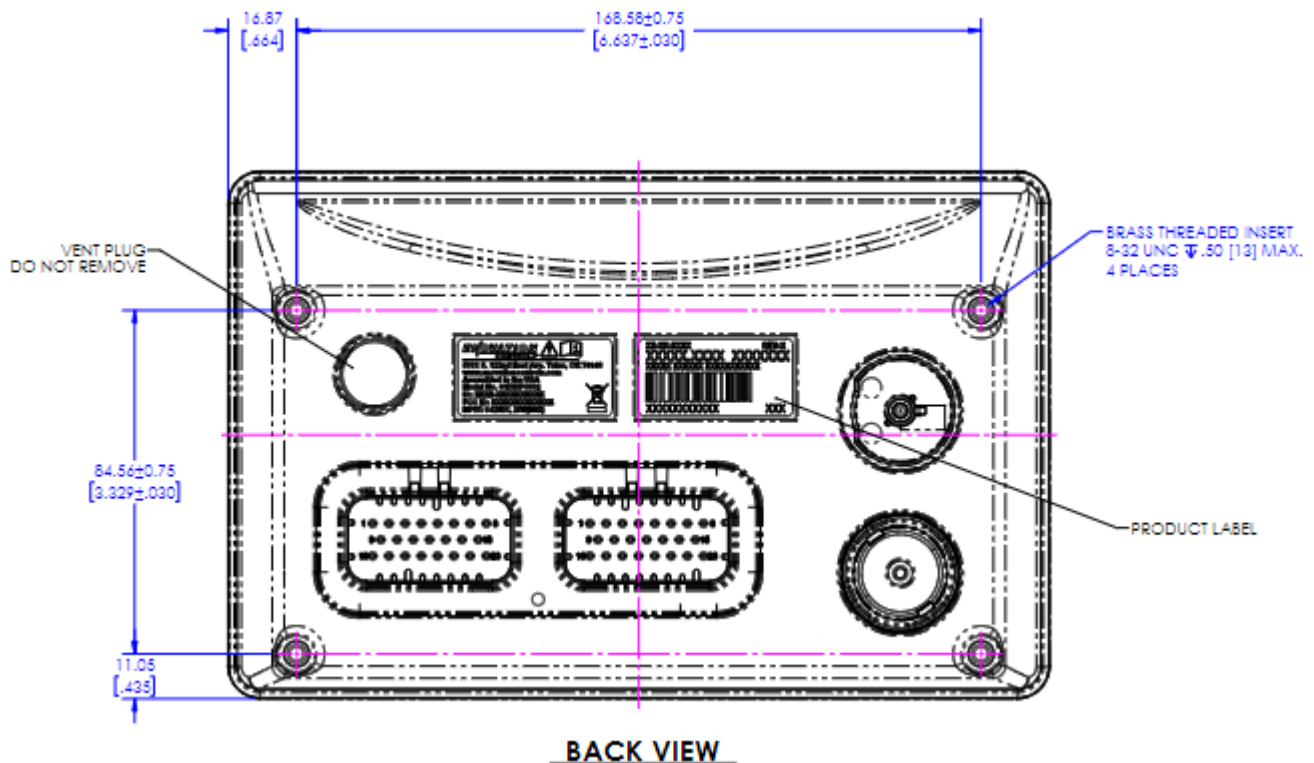| Part Number	Current Rating (A)	Housing Material Color	Typ. Voltage Drop (mV)	Cold Resistance (mΩ)	I^2t (A²s)
0287025._	25		92	2.52	1,000

UL Listed:
CSA Certified:

⚠️ IMPORTANT NOTE: Per IEC 62368-1 requirement the equipment needs to be protected in case of excessive input power. It is recommended that an external fuse be added to the wiring to limit the input power to the device and remove the electrical energy completely in case of a fault. Adding an external fuse is a way of protecting your electrical devices from overcurrent or short circuits. It involves connecting a fuse holder and a fuse to an existing circuit, usually using a fuse tap or a wire splice. The fuse rating should match the current draw of the device you are powering.

This same recommendation should also be applied to the output pins due to 1) being powered separately and 2) their sinking current.

Surface-Mounted Installation

To properly mount the display, first prepare the dashboard:
1. Use the measurement diagram shown below to create a clearance cutout for the connectors.
2. Using the provided measurements drill four locating holes for the fasteners.
3. Use 8-32 fasteners to mount the display using the four provided threaded inserts.

16.87
[.664]

168.58±0.75
[6.637±.030]

VENT PLUG
DO NOT REMOVE

BRASS THREADED INSERT
8-32 UNC � .50 [13] MAX.
4 PLACES

84.56±0.75
[3.329±.030]

PRODUCT LABEL

11.05
[.435]

BACK VIEW

Ordering Information

The P70 and accessories (if available) can be purchased through Enovation Controls:
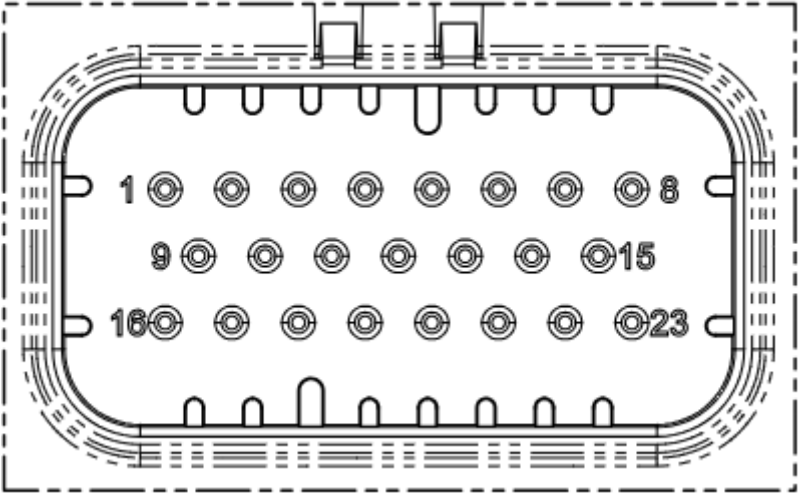
Part Number	Description	Order Details
78700712	Basic PV70	
78700692	P70 including internal GPS receiver, 2.4GHz Wi-Fi	
	Harness, TBD	

Software Platform

PowerVision Configuration Studio® 6.x or later

Pinout Specifications

23 Position Connector A (Mating Connector AMP 770680-2 Natural)

PIN #	Function
1	Digital Out HS 1
2	Digital Out HS 1
3	HS Driver Battery
4	HS Driver Battery
5	HS Driver Ground
6	HS Driver Ground
7	Battery
8	Ground
9	Digital In 1
10	Digital In 2
11	Digital In 3
12	Digital In 4
13	Analog Return

14	Analog Return
15	Ignition
16	CAN 1 L
17	CAN 1 H
18	CAN 2 L
19	CAN 2 H
20	Analog In 1
21	Analog In 2
22	Analog In 3
23	Analog In 4

23 Position Connector B (Mating Connector AMP 770680-5 Blue)

PIN #	Function
1	NC
2	Line Out 3 Left P
3	Line Out 3 Left N
4	Digital Out OD 1
5	Digital Out OD 2
6	Video In 2 P
7	Video In 1 P
8	Analog Out Return
9	Frequency In Return
10	Amp Turn-On
11	Digital Out OD 3
12	Digital Out OD 4
13	Video In 2 N
14	Video In 1 N

15	Analog Out	
16	Line Out 1 Left P	
17	Line Out 1 Left N	
18	Line Out 1 Right P	
19	Line Out 1 Right N	
20	Line Out 2 Left P	
21	Line out 2 Left N	
22	Line Out 2 Right P	
23	Line Out 2 Right N	

GPS Antenna (If Equipped)   USB Port
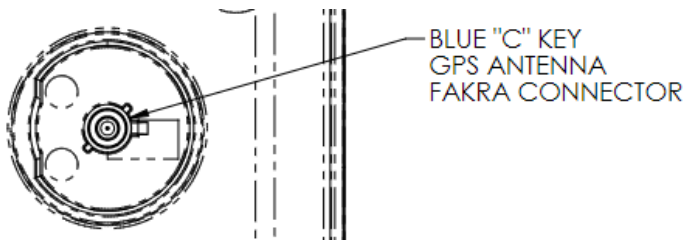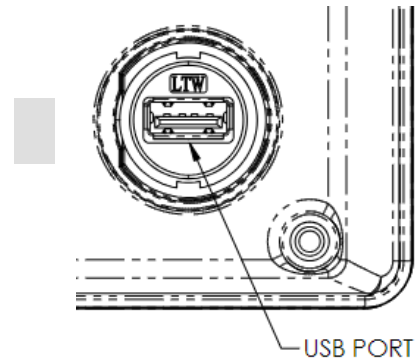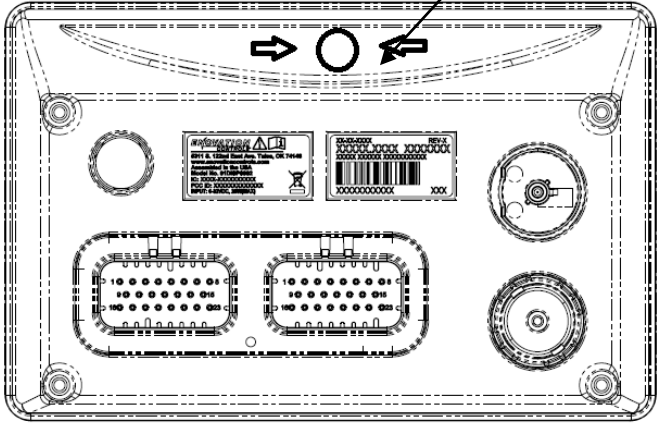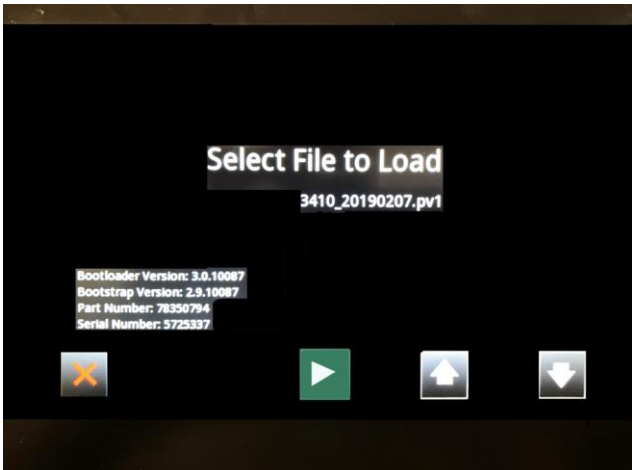
Configuration Information

Follow these steps to download a custom configuration to the P70 display:

Step	Action
1	Turn off the display.
2	Insert the USB drive that contains the new configuration file into the display's attached USB pigtail.
3	Place a magnet onto the area shown here on the upper middle side of the back of the display:
4	Power the display back on, continually holding the magnet in place.
5	Remove the magnet when the display shows the utility for loading new software.

Continued

Step	Action
6	Touch the up or down arrow keys on the screen until the appropriate configuration file from the USB to be loaded into the display is shown on the screen.
7	Press the right arrow/green arrow key on the screen twice to load the selected configuration.
8	Once completed, the unit will reboot into the loaded application.

Specifications

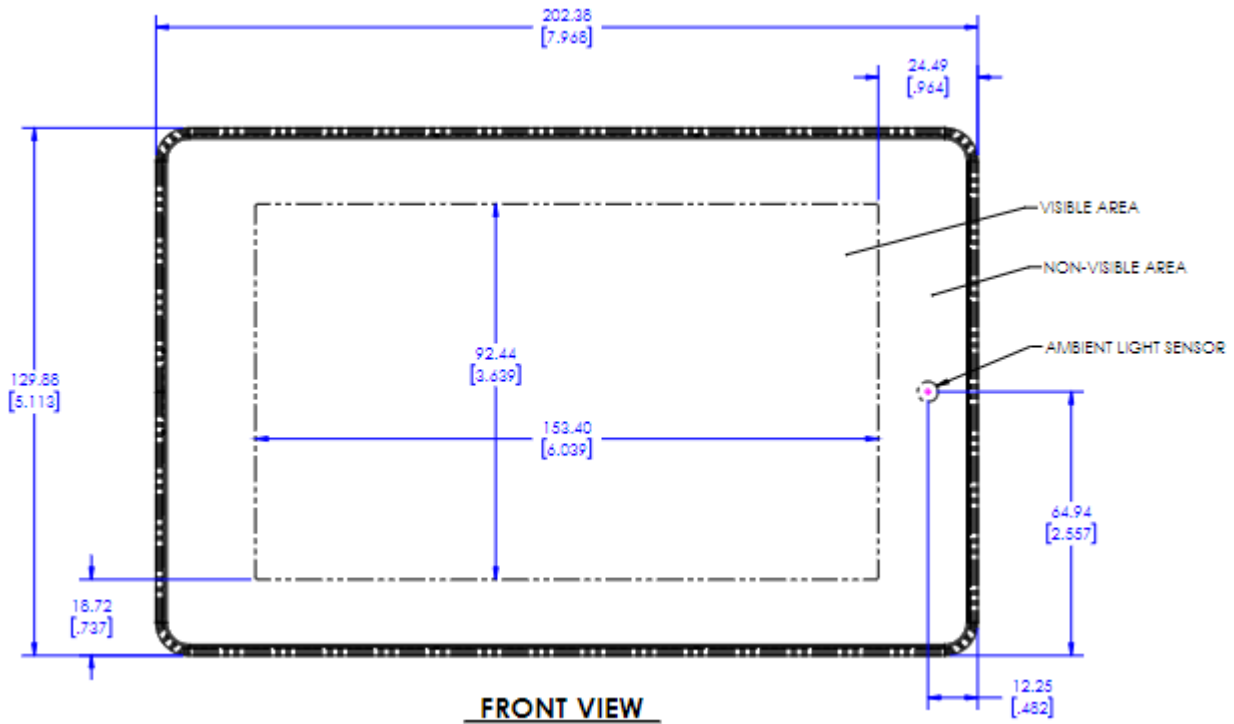| Computing	
Main Processor:	Renesas® RZ/G1e Arm® Cortex® -A7 dual-core processor @ 1.0 GHz (32-bit)
Operating System:	QNX® Real-time Operating System
Storage:	8 GB
Ram:	512 MB DDR3-SDRAM
Graphics	Integrated Graphics Processor
Display	
Type:	7" (202.38mm [H] x 129.88mm [V]) LVDS TT LCD with LED backlight
Color:	24-bit color
Resolution:	800 x 480 Pixels
Contrast Ratio:	1000:1 (typical)
Brightness:	1000 cd/m^2
Surface:	Anti-glare
Touch Panel:	Projected capacitive (PCAP) with glove touch
Ambient Light Sensor	Yes
Sensors (Optional)	Internal GPS Receiver (P/N 78700692) Accelerometer (P/N 78700692)

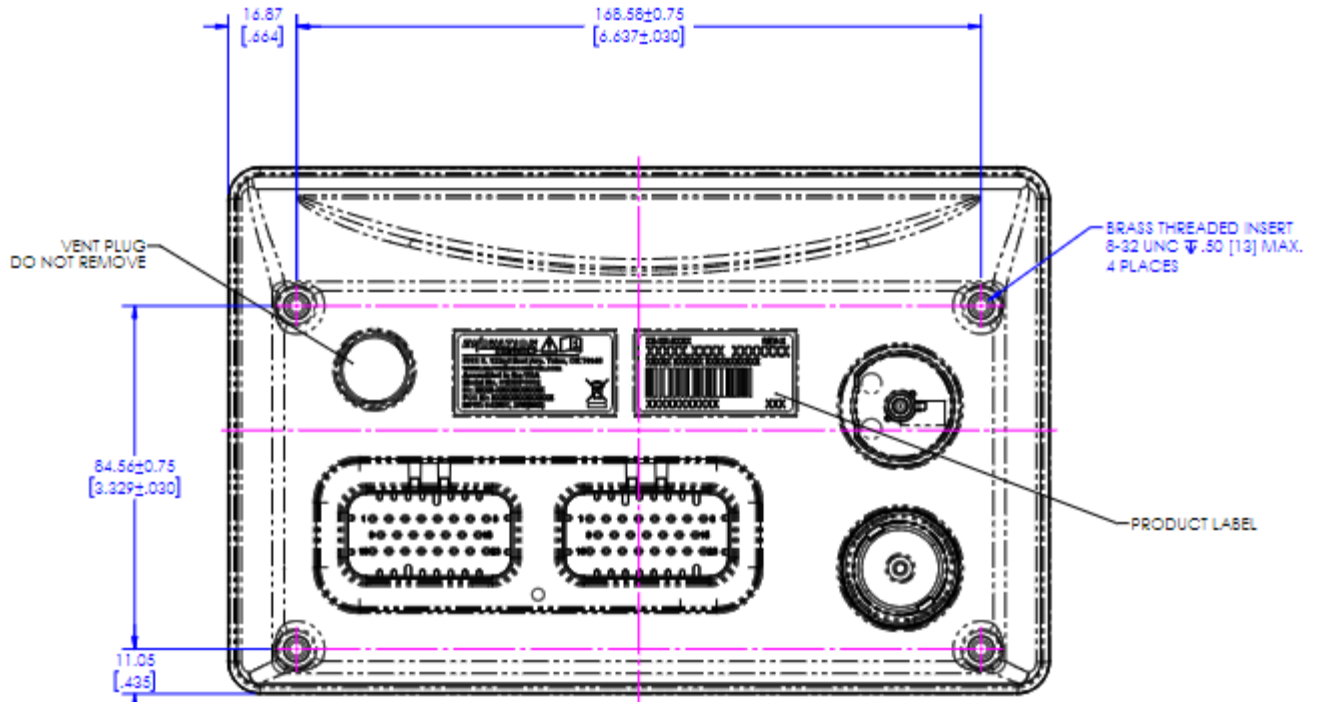Continued

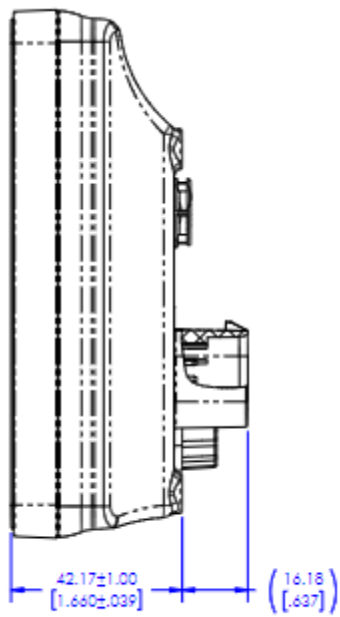| Hardware	
Real-time Clock:	Li-Ion battery backup (Typ. Lifespan minimum 10 years), non-rechargeable, non-replaceable
Connectors:	(1) Ampseal 23 pin (1) Ampseal 23 pin (1) USB Bulkhead (1) GPS Fakra Antenna Jack (Optional)
Video Inputs:	(2) NTSC/PAL (Single channel viewable, Differential)
Communication	
CAN:	(2) CAN 2.0B according to ISO 11898-2; J1939 and CANopen; proprietary messaging
USB:	(1) USB 2.0 High Speed Host (Optional)
Ethernet:	(1) X Ethernet 10/100 Base-T
Wi-Fi (P/N 78700692)**:**	802.11 b/g/n radio, 2.4GHz (Requires future firmware update)
Electrical	
Operating Voltage:	9 – 32 VDC, reverse polarity protected
Outputs:	(4) 500mA Switched Low-side (1) Analog Out (0-5V) (1) High-Side Digital (Battery level 10A)
Inputs:	(4) Analog 0-5VDC, 4-20mA, or resistive, 10-bit resolution (1) Discrete digital, active-high
Environmental	
Operating Temperature:	-40°C to 70°C (-40°F to 158°F)
Storage Temperature:	-40°C to 85°C (-40°F to 185°F)
Protection:	IP66 and IP67, front and back, for outdoor use
Vibration:	ISO 15003: 3.9 Grms (10-350Hz), 3 axes
Shock:	±50G in 3 axes
EMC/EMI:	SAE J1113, ISO 13766, CE per 2014/53/EU

Continued

Infotainment (Optional	
Stereo	(2) Outputs (Stereo, 20Hz-20kHz, Differential) (1) Subwoofer (mono, configurable, 30Hz-250Hz) (1) Amp Turn On/Accessory
USB Media	MP3, MP4 Playback
Bluetooth (P/N 78700692)	Audio Streaming; Fully integrated Bluetooth 5.0 Class 1

Dimensions

FRONT VIEW

16.87
[.664]

168.58±0.75
[6.637±.030]

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BRASS THREADED INSERT
8-32 UNC ▼ .50 [13] MAX.
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PRODUCT LABEL

11.05
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BACK VIEW

42.17±1.00
[1.660±.039]

16.18
[.637]

SIDE VIEW

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ENOVATION CONTROLS CORPORATE HEADQUARTERS
5311 S 122ND EAST AVENUE
TULSA, OK 74146

ENOVATION CONTROLS LTD. – UNITED KINGDOM
CHURCH ROAD LAVERSTOCK
SALISBURY SP1 1QZ UK

SUN MURPHY INTERNATIONAL TRADING (SHANGHAI) CO., LTD
B15 ROOM, 6# BUILDING, 351 SIZHUAN ROAD
SONGJIANG DISTRICT, SHANGHAI 201601, CHINA

ENOVATION CONTROLS INDIA PVT. LTD.
PLOT NO. 146, SECTOR 10, PCNTDA
BHOSARI, PIMPRI CHINCHWAD
PUNE - 411026
MAHARASHTRA, INDIA

U.S. SALES & SUPPORT

PHONE: 918 317 4100
EMAIL: SALES@ENOVATIONCONTROLS.COM
WWW.ENOVATIONCONTROLS.COM

CONTACT US

INTERNATIONAL SALES & SUPPORT

EUROPE, MIDDLE EAST, AFRICA
PHONE: +44 1722 410055
EMAIL: EMEASALES@ENOVATIONCONTROLS.COM

CHINA
PHONE: +86 21 6237 5885
EMAIL: APACSALES@ENOVATIONCONTROLS.COM

INDIA
PHONE: +91 91581 37633
EMAIL: INDIASALES@ENOVATIONCONTROLS.COM

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FM 28221 (Tulsa, OK - USA)
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