Electronic Initiation Device 1

FEATURES:

- Compact, rugged design
- Lightweight
- Reusable
- High accuracy
- Fully programmable options
  - ♦ Time delays of milliseconds to hours
  - ♦ Altitude by absolute pressure
  - ♦ Speed by differential pressure
  - ♦ Shock by accelerometer
  - ♦ Sensor lockout and backup timer
- Safe-shorted output
- Device status indicator LEDs
- Powered by off-the-shelf battery (COTS)
- Extended battery life in standby mode
- Energy pulse up to 1000 mJ

EID1-TP-M/CB Pictured

Applications:

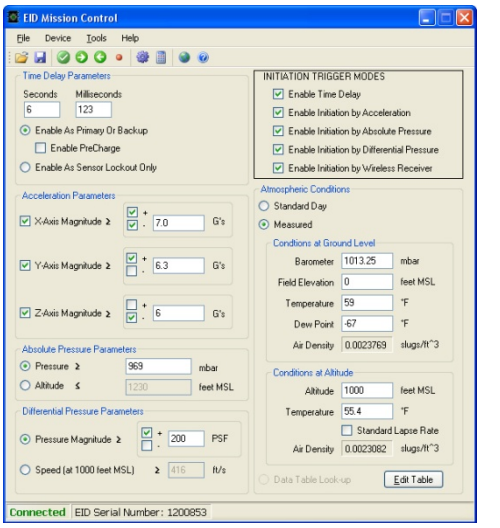
- Aerial Testing
  - ♦ Programmable parachute disreefing
  - ♦ Drogue or main parachute release
  - ♦ Multiple event sequencing
- Ground Based Initiation
- Delay On Signal
  - ♦ Switch or voltage input

GENERAL DESCRIPTION:

The **E**lectronic **I**nitiation **D**evice is a capacitive discharge device intended for use with hot bridgewire initiation devices or cartridge actuated devices, such as pyrotechnic line cutters, squibs, and standard initiators. Paired with the EID Mission Control Software, the EID unit can be programmed for planned initiation based upon selectable parameters, which include time elapses, pressures, and accelerations. Key initiation parameters are stored to internal memory in real-time and can be downloaded for review after initiation.

DESKTOP APPLICATION SOFTWARE:

- Initiation parameters programming
- Post-initiation operations review
- Pressure altitude & speed calculator tool
- Selectable display units, imperial or metric
- RS232 serial communication
- MS .Net Framework version 3.5 or newer
- Windows® XP/Vista or newer compatible



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SPECIFICATIONS:

ELECTRICAL

Power Supply:	3 volt Li battery, commercial-off-the-shelf (COTS) Size 1/2A (CR2) standard: capacity ~850 mAh Size 2/3A (C123) optional[1,2]: capacity ~1500 mAh Reverse polarity protected 6 volt Absolute Maximum Rating
Current Draw:	Disarmed: < 50 µA nominal Running: 40 mA nominal average Indicating: LEDs upto 70 mA average

ENVIRONMENTAL

Temperature:	-40°C to 60°C Operating -55°C to 85°C Storage (w/o Battery)
Humidity:	15 - 85% RH, non-condensing

MECHANICAL

BC Connector(s):	MIL-C-26482, PT02A10-6S Mates with PT06E10-6P
Dimensions:	Varies by model options, see *Device Descriptions* Typical model example: EID1-TP-M/CB (as pictured) 5.53" x 1.52" x 1.22" [14.0 cm x 3.8 cm x 3.1 cm]
Weight:	< 8 oz. nominal (225 g), including battery

INPUT / OUTPUT SIGNALS

Output Pulse:	2-lead, relay controlled (100G shock rated) 30 volts typical Energy burst up to 1000 mJ[1,2]
Output Arming:	Enabled via jumper or n/o switch contacts
Output Shorting:	Terminals shorted via jumper or n/o switch contacts
S-output[3]:	Optically isolated, n/o switch control, optional[2]
S-input:	2-lead n/o switching detection for Triggering
M-input:	Magnetic n/c switching detection for Arming
V-input[3]:	2-lead polarized voltage detection for Triggering Optically isolated, 5-30v ±10% standard Optically isolated, 3-12v ±15% optional[2]
SB-input:	Manual slide switch control Configurable[2] for power, arming, or triggering
Communication:	RS-232 protocol via RJ45 jack and adapter Cable and adapter supplied

INITIATION TRIGGER MODES

Time Delay:	Set in seconds and milliseconds Use as primary trigger, Or to lockout other enabled triggers Typical accuracy 0.01%
Absolute Press:	Set trigger as pressure or altitude Range: 150 to 1150 kPa Typical accuracy 0.1% full scale
Differential Press:	Set trigger as pressure or speed Range: ±3.6 psid Accuracy rated to ±5% full scale
Acceleration:	Programmable G-force trigger Range: ±8 Gs Typical accuracy 1% full scale
Wireless:	Paired transmitter and receiver(s) Range: 300 feet Typical actuation time ~10 ms

PART NUMBER QUICK REFERENCE

EID1 F-T-S/BC

Product Series

Enclosure Type
- _ = Non-Flanged, IP54
- **F** = Flanged, IP54
- **W** = Non-Flanged, IP65
- **FW** = Flanged, IP65

Initiation Mode
- **T** = Time Delay
- **P** = Absolute Pressure Threshold
- **D** = Differential Pressure Threshold
- **G** = Acceleration Threshold
- **W** = Wireless Receiver

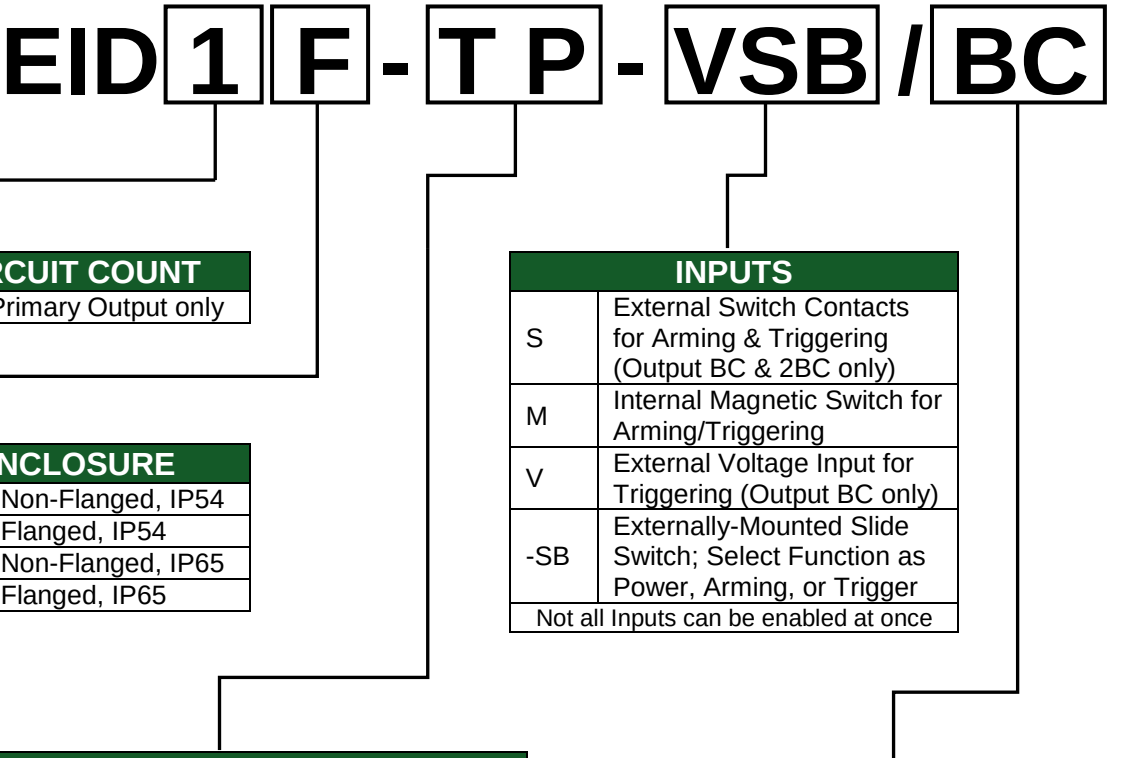
Input **/** Output
- **S** = External Switch Control
- **M** = Internal Magnetic Switch
- **V** = Voltage Input
- **SB** = Externally Mounted Switch
- **/**
- **BC** = Bulkhead Connector
- **WC** = Wire-Extended Connector
- **WB** = Wire Extension Leads
- **CB** = Bulkhead Cutter Mount

*** Not all options above can be combined on every model ***

Additional Customization Options[2]:
- -2BC models: 2nd connector to separate output from input signals
- -Water resistant enclosure IP65, versus standard IP54

[1] Battery size 2/3A option decreases output pulse capability to ~450 mJ
[2] Optional items selected at time of order
[3] S-output and V-input share one connector; cannot be ordered together

PART NUMBER DESCRIPTION:



CIRCUIT COUNT	
1	Primary Output only

ENCLOSURE	
-	Non-Flanged, IP54
F	Flanged, IP54
W	Non-Flanged, IP65
FW	Flanged, IP65

INPUTS	
S	External Switch Contacts for Arming & Triggering (Output BC & 2BC only)
M	Internal Magnetic Switch for Arming/Triggering
V	External Voltage Input for Triggering (Output BC only)
-SB	Externally-Mounted Slide Switch; Select Function as Power, Arming, or Trigger
Not all Inputs can be enabled at once	

INITIATION MODES	
T----	Time Delay only
TP---	Time & Absolute Pressure Threshold
TD---	Time & Differential Pressure Threshold
TG---	Time & Acceleration Threshold
TPG--	Time & Absolute Pressure & Acceleration Thresholds
TPD--	Time & Absolute Pressure & Differential Pressure Thresholds
TDG--	Time & Differential Pressure & Acceleration Thresholds
TPDG-	Time & Absolute Pressure & Differential Pressure & Acceleration Thresholds
----W[1]	Wireless Initiation Module

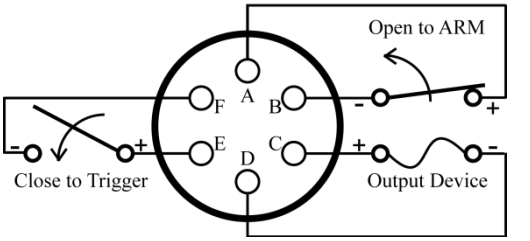
OUTPUTS	
BC	Signals via One Bulkhead Connector
2BC	Signals via Two Bulkhead Connectors
WC	Output Cable to 2-Position Connector (Input M only)
WB[2]	Wire Exit Block only
CB[2,3]	Direct Cutter Mount

[1] Option is available when pairing EID units with wireless transmitter and receiver modules.
[2] Option alone may not be IP rated. Final connections or sealing measures by user may be necessary.
[3] Cutter mounts available for Model G2 and Model G4 cutters by Roberts Research Laboratory.

HARDWARE PINOUTS

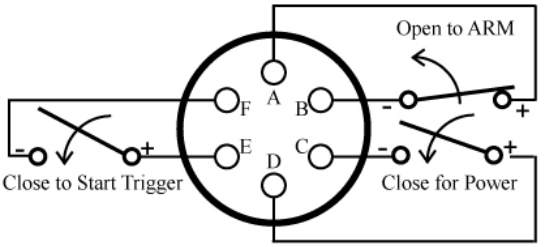
-S/BC model with single connector (standard):

INPUT/OUTPUT CONNECTOR
- Contact A: Positive terminal for Arm switch
- Contact B: Negative terminal for Arm switch
- Contact C: Positive terminal for Output
- Contact D: Negative terminal for Output
- Contact E: Positive terminal for Start Trigger switch
- Contact F: Negative terminal for Start Trigger switch

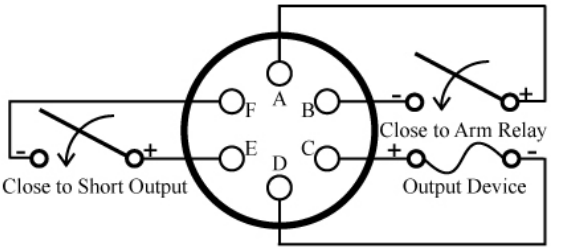


-S/2BC model with secondary connector (optional):

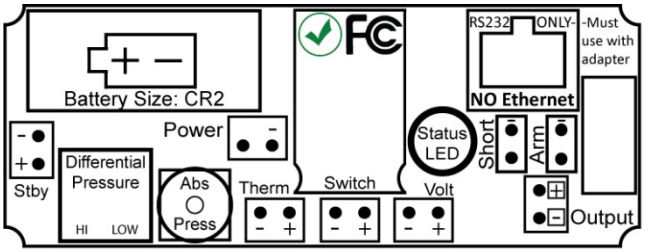
INPUT CONNECTOR
- Contact A: Positive terminal for Arm switch
- Contact B: Negative terminal for Arm switch
- Contact C: Negative terminal of Battery
- Contact D: Negative terminal for power ground
- Contact E: Positive terminal for Start Trigger switch
- Contact F: Negative terminal for Start Trigger switch



OUTPUT CONNECTOR
- Contact A: Positive terminal for relay Arm switch
- Contact B: Negative terminal for relay Arm switch
- Contact C: Positive terminal for Output
- Contact D: Negative terminal for Output
- Contact E: Positive terminal for Output shorting
- Contact F: Negative terminal for Output shorting

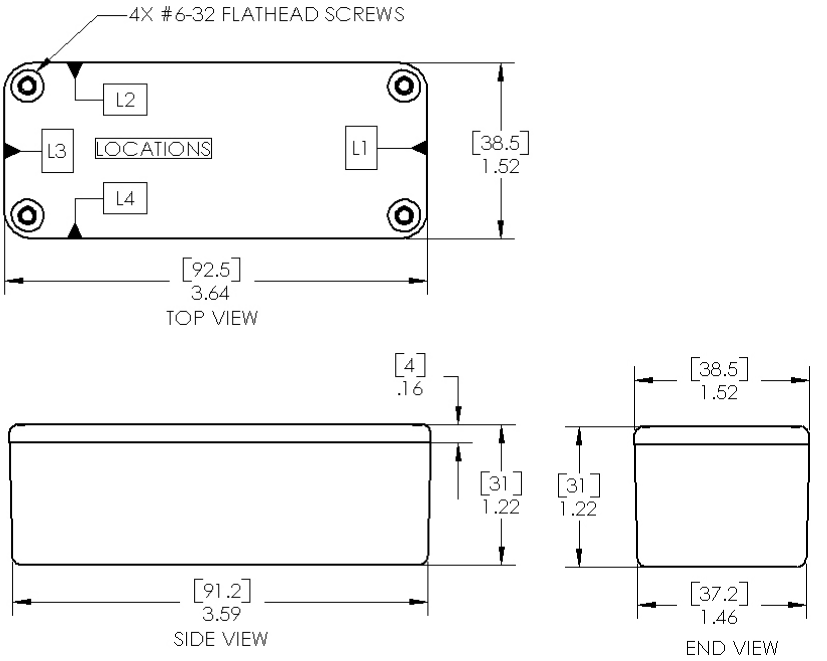


CIRCUIT LAYOUT
- Connector and sensor locations (v1.2x)
- All shown here, only ordered options are equipped

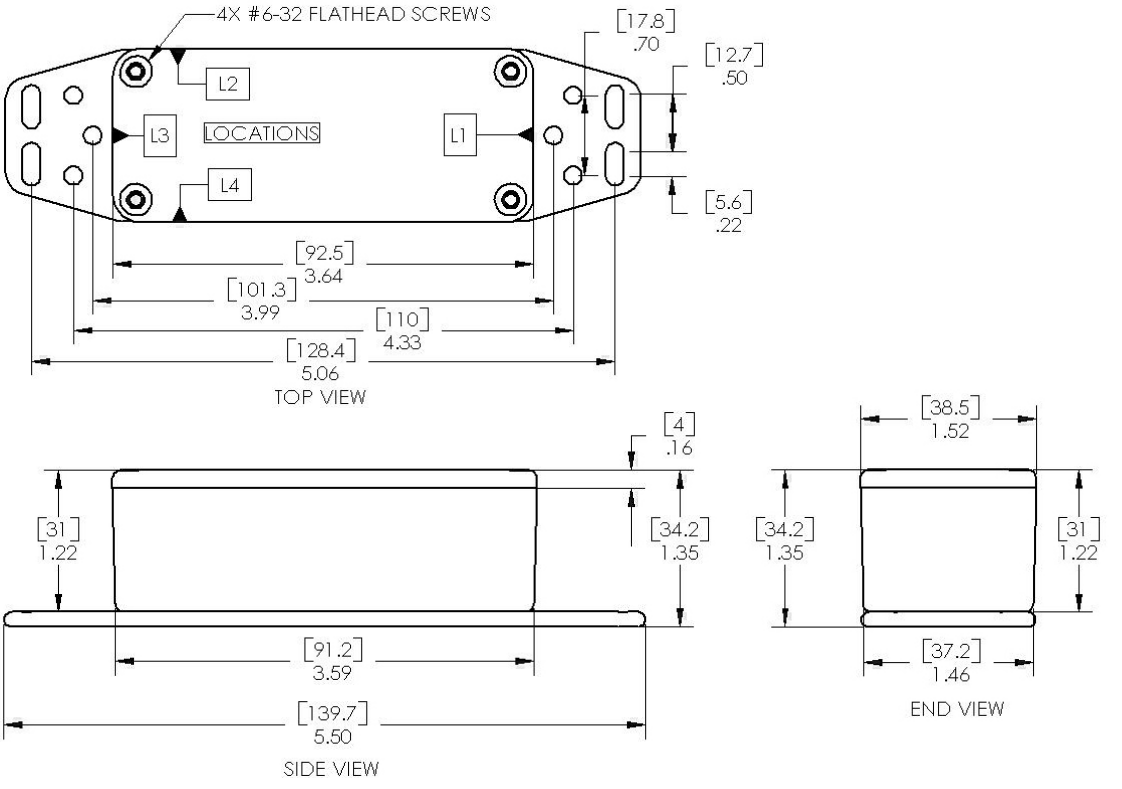


DEVICE DESCRIPTIONS: Dimensions in inches [millimeters] unless otherwise noted.

EID1 Enclosure without Flange

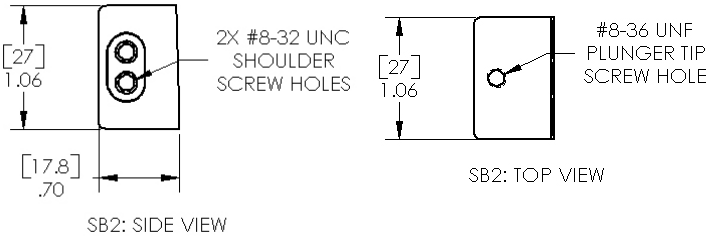


EID1 Enclosure with Flange



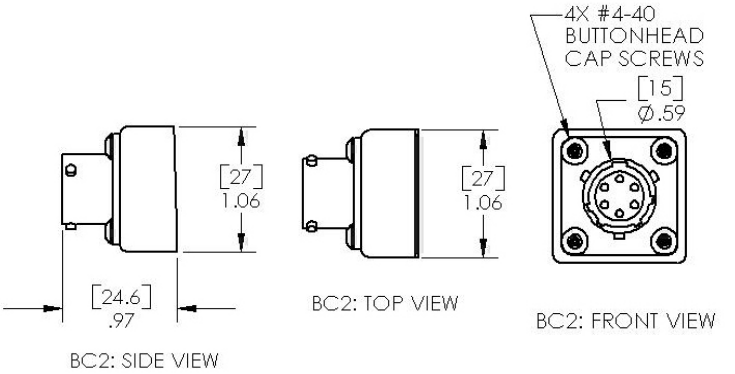
SB – Accessory block for mounting external slide switch

SB2-MS12: Standard position at location L2; L3 optional



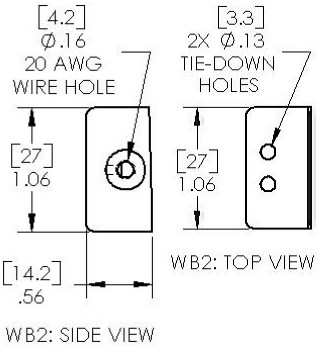
BC – Accessory block for mounting bulkhead connector

BC2-10: Standard position at location L1; L3 for 2nd BC only



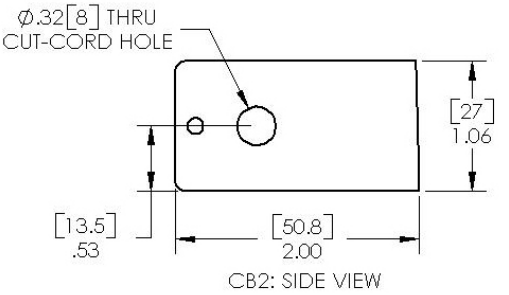
WB – Accessory block for passing a wire through enclosure wall

WB2-AWG20: Standard position at location L1; L4 optional

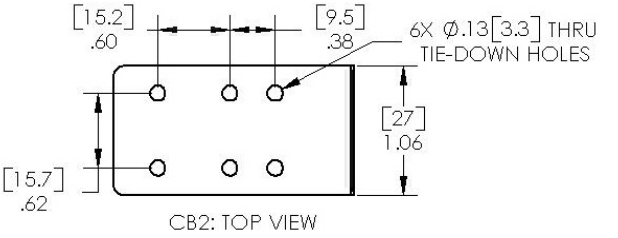


CB – Accessory block for direct mounting cutter to enclosure

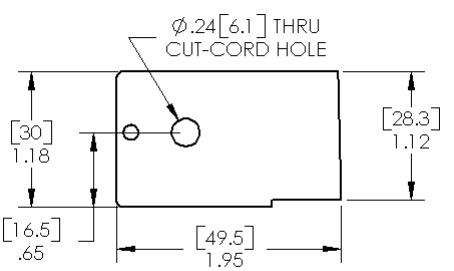
CB2-RRLG4 & CB3-RRLG4: Standard position at location L1 only



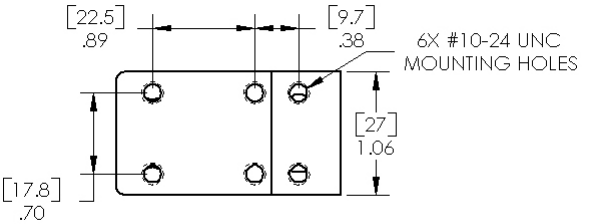
CB2: SIDE VIEW



CB2: TOP VIEW



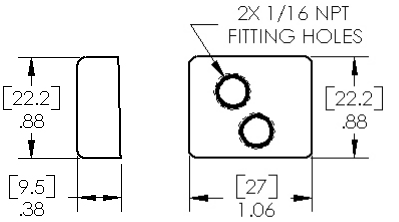
CB3: SIDE VIEW



CB3: BOTTOM VIEW

PB – Accessory block for differential pressure port connection

PB1-DP7025: Standard position at location L4 only



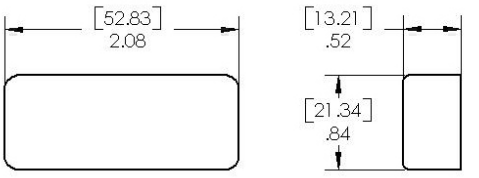
PB1: SIDE VIEW

PB1: FRONT VIEW

PB1: TOP VIEW

RFLC – Accessory block to enclose wireless radio module

RFLC1: Standard position on top of lid only

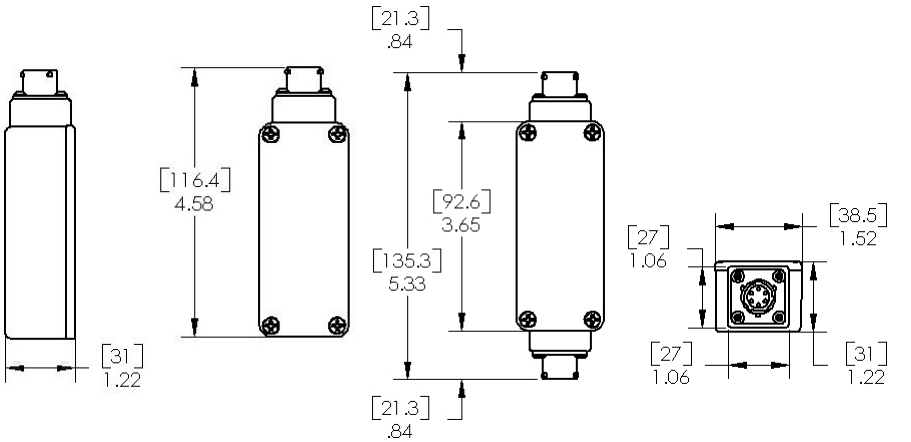


TOP VIEW

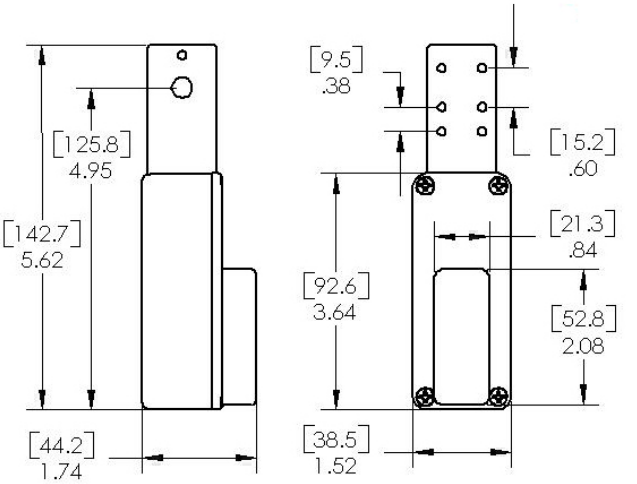
END VIEW

Examples of accessory blocks attached to EID1 enclosures (for reference only)

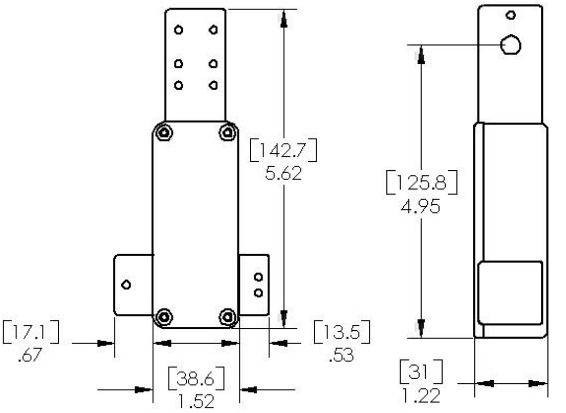
Models EID1-xx-S/BC (BC2-10 @ L1) and EID1-xx-S/2BC (BC2-10 @ L1 & L3)



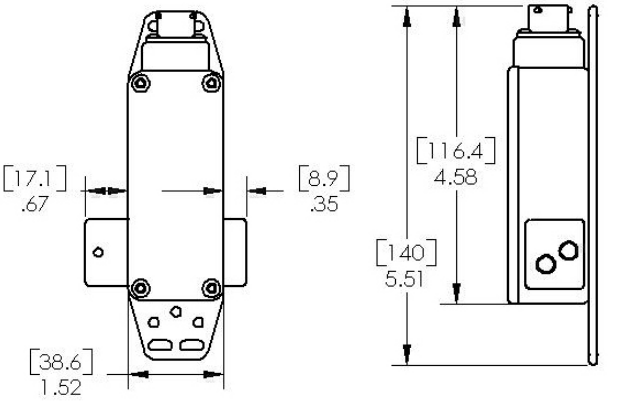
Model EID1-xW-M/CB (CB2-RRLG4 @ L1, RFLC1 on lid)



Model EID1-xx-MSB/WBCB (CB2-RRLG4 @ L1, SB2-MS12 @ L2, WB1-AWG20 @ L4)



Model EID1F-TD-SSB/BC (BC2-10 @ L1, SB2-MS12 @ L2, PB1-DP7025 @ L4)



NOTES:

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