Technical Data Sheet

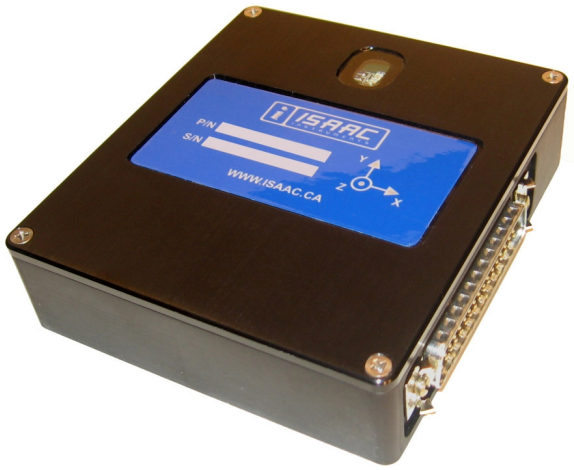
V8.0 Standard System – BOXV80-STD

Features

- Low power, small size, light weight Data Recorder.
- Rugged anodized aluminum enclosure.
- 16 MBytes of memory, with data retention in case of power loss.
- 4 digital inputs: frequency, counters or state.
- 4 external analog inputs.
- 5 internal sensors:
  - 3 internal accelerometers: ±2G or ±6G.
  - Internal Temperature.
  - Supply Voltage
- 1 PWM control/alarm output.
- 1 USB 2.0 full-speed port.
- 3 RS-232 serial ports (COM)
- 3 Vehicle data bus ports
  - CAN1: CAN 2.0a/b (HS-CAN)
  - CAN2: CAN 2.0a/b (HS-CAN – see other options below)
  - SAE-J1708/SAE-J1587
- Compatibility with:
  - COMGPS – GPS receiver with antenna.
  - COMBLU – Bluetooth radio transceiver.
  - COMMH1 – 900 MHz long range radio transceiver.
  - COMGPR – GPRS (GSM) cellular network radio transceiver.
  - CANOBD – Connect to all OBD compatible vehicle data bus (J1850PWM, J1850VPW, ISO9141-2, ISO 14230 KWP, ISO15765 - CAN)
- Input activated recording – automatic start/stop.
- Sampling rate up to 4kHz per channel.
- Vibration Lock™ - Mil spec connector, no tools required.

Options

OPTMEM-512	Memory upgrade from 16 to 512 MB
OPTVD2	Vehicle Data bus option 2 – CAN1: CAN 2.0a/b (HS-CAN) – CAN2: CAN 2.0a/b (FT-CAN) – SAE-J1708/SAE-J1587
OPTVD3	Vehicle Data bus option 3 – CAN1: CAN 2.0a/b (HS-CAN) – CAN2: CAN 2.0a/b (SW-CAN) – SAE-J1708/SAE-J1587



Installation

- Attach the Recorder to the vehicle chassis using Dual-Lock™ Velcro.
- Position the Recorder such that the three LEDs indicating the system status are visible.
- Align the Recorder's X,Y and Z axis along the sensing direction.
- Use the main recorder harness (CBLMN1) to connect the Recorder to the power supply and peripherals.
- Protect the Recorder from extreme vibrations.
- Make sure that air flows over the Recorder to avoid high temperatures.
- The Recorder supply ground should connect straight to the power supply. Use 16-18-AWG for power connection.
- Keep the Recorder and its wires at least 20cm (8") away from high interference electrical devices, such as: ignition coils, plug leads, high-current leads, high emission electronic modules or antennas.

Calibration

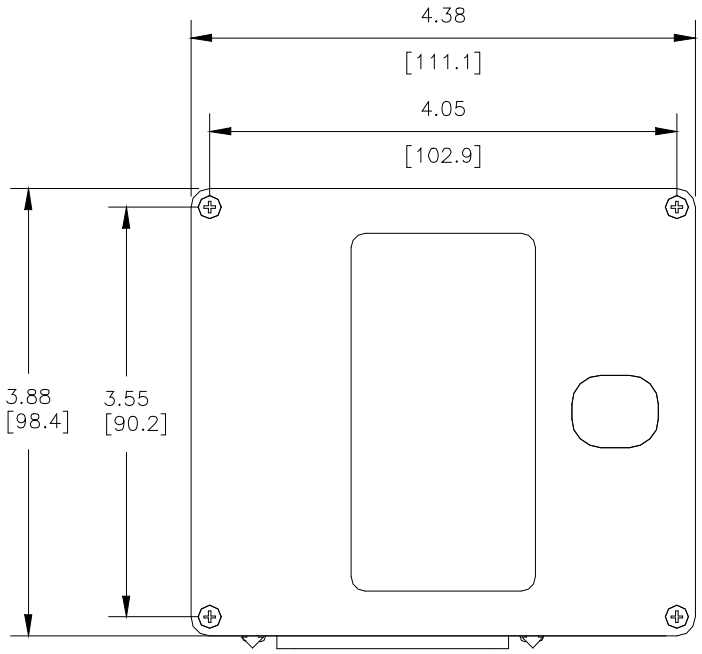
This unit is supplied with calibration data for its three internal accelerometers.

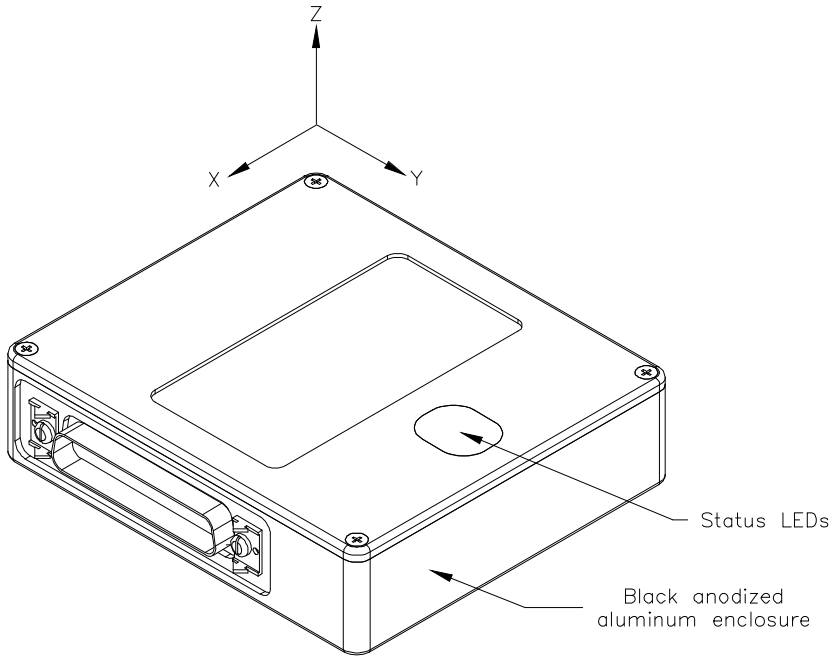
Specifications

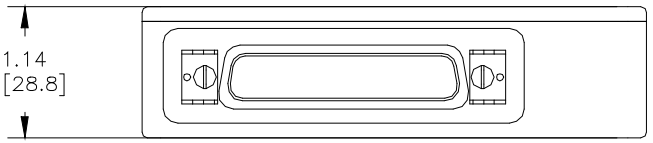
Description	Symbol	Min	Typ	Max	Unit
Power Supply 11-18V input					
Input Voltage [1]	V_{in}	11.0		18.0	V
Supply Current @ 11.0V[2]	I_{in-11}		48		mA
@ 18.0V	I_{in-18}		30		mA
Operating Temperature	T_O	-40		85	C
Storage Temperature	T_S	-40		85	C
Internal Accelerometer					
±2G resolution X, Y and Z	$ACCRES_{XYZ2G}$		0.00488		G/bit
±6G resolution X, Y and Z	$ACCRES_{XYZ26}$		0.01465		G/bit
0G level	$ACCZGL_{XYZ}$		2.5		V
non-linearity X, Y	$ACCNL_{XY}$		±1		%FS
non-linearity Z	$ACCNL_{Z}$		±3		%FS
bandwidth X, Y and Z	$ACCBW_{XYZ}$		10		Hz
Internal Temperature Sensor					
Measurement range	SIG_{TMP}	-40		150	C
Accuracy over measuring range	ACC_{TMP}		±2		C
Resolution	RES_{TMP}		0.48828		C/bit
DTC detector group					
Supply voltage[3]	V_{DTC}	V_{in}-0.6		V_{in}	V
Total supply current[4]	I_{DTC}			170	mA
Input low voltage[5]	DTC_{Lo}	-50		2.4	V
Input high voltage[6]	DTC_{Hi}	2.6		50	V
Internal pull-up resistor	R_{pup}		4.7		kΩ
Input Capacitance	C_{DTC}		100		pF
Input Frequency	F_{DTC}	0.7		1000	Hz
Sampling rate per input	$SAMP_{DTC}$	1/600		4000	Samp.sec
Counter Resolution	RES_{DTC}		5.3333		us
A sensor group					
Supply voltage	V_{SENA}	V_{in}-0.6		V_{in}	V
Total supply current	I_{SENA}			170	mA
Input Voltage[7]	SIG_{SENA}	0		5.0	V
Input Accuracy	ACU_{SENA}		<0.1		%FS
Input Capacitance	C_{SENA}		100		pF
A/D converter resolution	ADR_{SENA}		0.0048828		V/bit
A/D conversion time per chan.	ADT_{SENA}	7		14	us
A/D conv. time all SENA chan.	$ADTA_{SENA}$	14		28	us
A/D conv. frequency	$ADTF_{SENA}$	8.928		17.85	kHZ
Sampling speed per input	$SAMP_{SENA}$	1/600		4000	Samp./sec
COM group					
Supply voltage	V_{COM}	V_{in}-0.6		V_{in}	V
Total supply Current	I_{COM}			500	mA
Regulated Supply Voltage	$V_{COM-REG}$	4.75		5.25	V
Regulated Supply Current	$I_{COM-REG}$			500	mA
Control output Voltage	V_{CTL}	0		5	V

[1] Use PWSISO-240 for extended input range 18-36V.
[2] Recorder with no sensor attached
[3] Voltage supplied by the Recorder to the given sensor or detector group.
[4] Maximum current before the auto-reset fuse interrupts supply to the given sensor or detector group.
[5] Single-ended voltage for each detector input.
[6] Single-ended voltage for each detector input.
[7] Single-ended voltage for each sensor input

CAN HSCAN Interface (Philips TJA-1050)					
Bit Rate	BR_{HSCAN}	10		1000	KBbit/sec
DC voltage at pin CANH/CANL	V_{HSCANH}/V_{HSCANL}	-27		40	V
Transient voltage at pin CANH/CANL	Vt_{HSCANH}/Vt_{HSCANL}	-200		200	V
CAN FTCAN Interface (Motorola MC33388)					
Bit Rate	BR_{FTCAN}	10		125	KBit/sec
DC voltage at pin CANH/CANL	V_{FTCANH}/V_{FTCANL}	-20		27	V
Transient voltage at pin CANH/CANL	Vt_{FTCANH}/Vt_{FTCANL}	-40		40	V
CAN SWCAN Interface (Philips AU5790)					
Bit Rate	BR_{SWCAN}	10	33	100	Kbit/sec
DC voltage at pin CANH	V_{SWCANH}	-10		18	V
Transient voltage at pin CANH	Vt_{SWCANH}	-100		100	V
SAE J1708 Interface (National DS36277)					
Bit Rate	BR_{HSCAN}		33	1	Mbit/sec
DC voltage at pin CANH	V_{HSCANH}	-27		40	V
DC voltage at pin CANL	V_{HSCANL}	-27		40	V
Transient voltage at pin CANH	Vt_{HSCANH}	-200		200	V
Transient voltage at pin CANL	Vt_{HSCANL}	-200		200	V
Effective download throughput					
USB			530		KBytes/sec
COM1, COM2, COM3 (RS-232)			10		kBytes/sec
Mechanical Specifications					
Height			31.75 (1.25)		mm(in.)
Depth			101 (4.00)		mm(in.)
Width			114.3 (4.5)		mm(in.)
Weight			260 (9.17)		g(oz.)







All dimensions are in inches [millimeters].