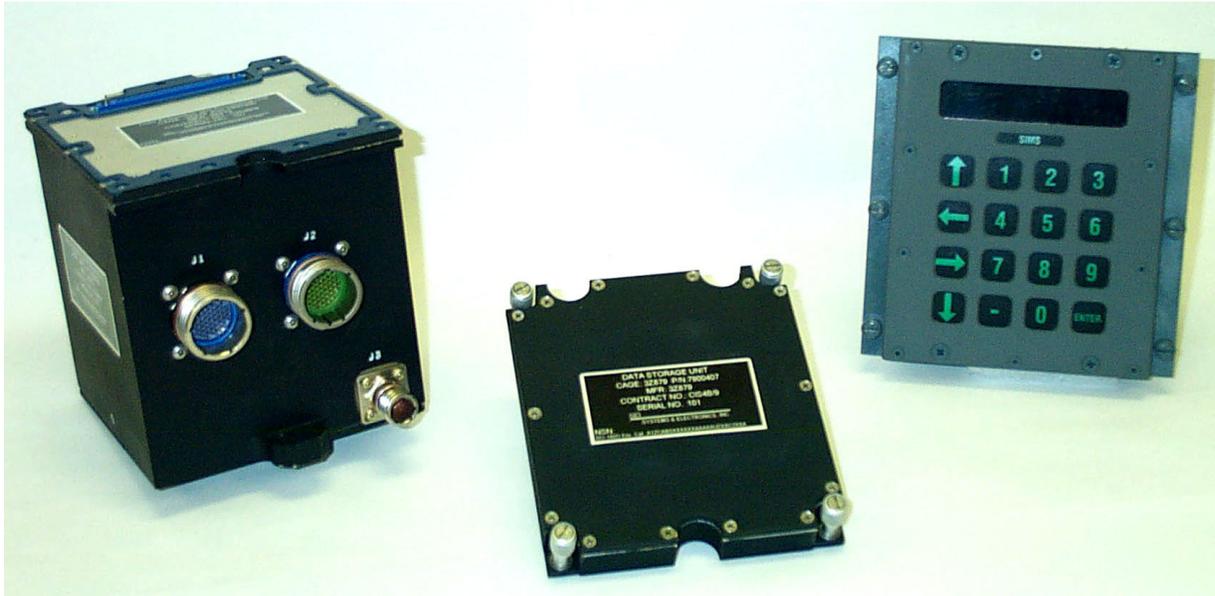# STRUCTURAL INTEGRITY MONITORING SYSTEM



Systems & Electronics, Inc. (SEI) *Structural Integrity Monitoring System* (SIMS) is the airborne portion of SEI's Health and Usage Monitoring System (HUMS). It consists of a Data Acquisition and Processing Unit (DAPU), a Data Storage Unit (DSU), and an optional Control/Display Unit (CDU).

The DAPU has analog, discrete, and strain gauge inputs, discrete outputs, as well as RS-422 and ARINC 429 data buses.

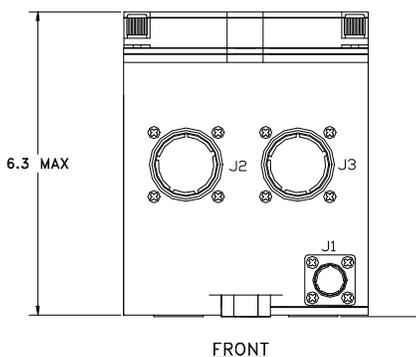The DSU has 128 Mb of non-volatile memory, expandable to 256 Mb.

The CDU has 16 keys and a 2 line, 16 character display, dimmable along with aircraft instruments.

The SIMS low power consumption, light weight, and small size allow for easy aircraft installation.
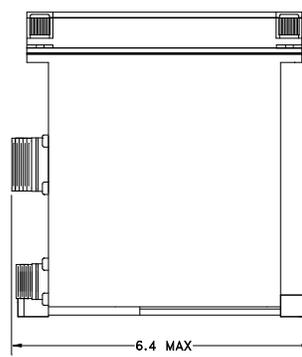
**A Solution to Tracking Aircraft Severity of Operations.**

**Custom Configurations, Aircraft Systems Integration, and Data Analysis Services are Available**
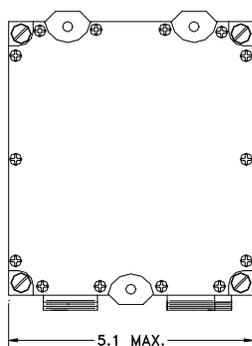
◆ **Designed to RTCA/DO-160D**
◆ **Product Features:**
   ◆ Twenty-six strain gauge inputs
   ◆ +10 Vdc strain sensor excitation output
   ◆ Six ±10 VDC differential inputs
   ◆ Two RS-422 / One RS-232 ports
   ◆ Four Rx / Two Tx ARINC 429 ports
   ◆ Four high / four low level discrete inputs
   ◆ Four high / four low level discrete outputs

FRONT

6.3 MAX

J2    J3

J1

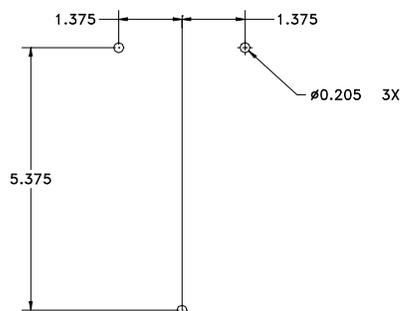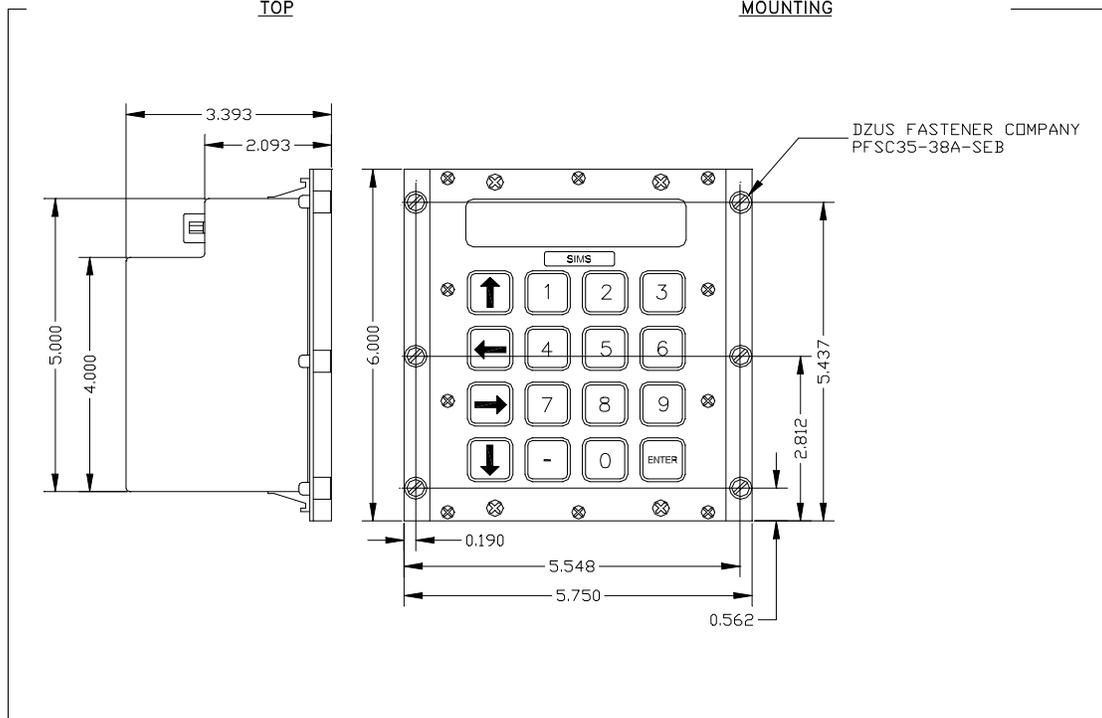SIDE

6.4 MAX

TOP

5.1 MAX.

MOUNTING

1.375        1.375

ø0.205   3X

5.375

3.393

2.093

5.000

4.000

6.000

5.437

2.812

0.190

5.548

5.750

0.562

SIMS

↑  1  2  3
←  4  5  6
→  7  8  9
↓  -  0  ENTER

DZUS FASTENER COMPANY
PFSC35-38A-SEB

| SUMMARY SPECIFICATIONS—DAPU | |
|---|---|
| **Parameter** | **Specification** |
| Input voltage | +18 to 36 VDC |
| Power consumption | < 3 Watts |
| Weight | < 6 pounds |
| Strain gauge inputs (26) | ±51.25 mV |
| Strain gauge excitation | +10 Vdc @ 500 mA |
| Analog channels (6) | ± 10 Vdc differential |
| Communication interfaces | RS-232 (1)<br>RS-422 (2)<br>ARINC 429 Rx (4)<br>ARINC 429 Tx (2) |
| Memory capacity | 128 Mb Flash<br>Expandable to 256 Mb |
| Discrete inputs (8) | Open/+28 Vdc (4)<br>Ground/open (4) |
| Discrete outputs (8) | Open/ground (4)<br>Open/+28 Vdc (4) |
| Operating Environment | -40°C to +71°C |

| SUMMARY SPECIFICATIONS—CDU | |
|---|---|
| **Parameter** | **Specification** |
| Input voltage | +18 to 36 VDC |
| Power consumption | < 3 Watts |
| Weight | < 2.5 pounds |
| Keypad | 16 Keys<br>Tactile Feedback<br>Membrane Keys<br>Green Backlighting |
| Display | Two Lines<br>16 Characters Per Line<br>Alphanumeric and Symbols<br>16 Programmable Symbols<br>Green LED |
| Dimming | Keypad and Display<br>0 to 5 Vdc<br>0 to 110 Vac optional |
| Communication interfaces | (1) RS-232<br>(2) RS-422 |
| Operating Environment | -40°C to +55°C |