## BOXBORO s y s t e m s

# Hybrid III ATD – 50<sup>th</sup> Male RibEye<sup>™</sup> A Better Way to Measure Thorax Displacement



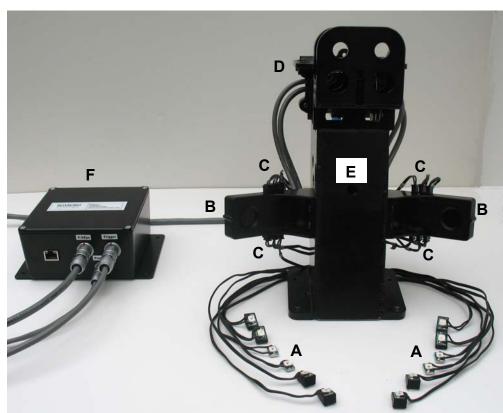
### **Measurement Capabilities**

- Accuracy +/- 0.2 mm typical +/- 1 mm max. error
- Range
  - X axis: up to 85 mm chest compression Y axis: +/- 90 mm from center of spine Z axis from top rib to bottom rib
- Acquisition time @ 10 kHz sample rate 30,000 ms (30 seconds) in RAM 2 seconds in flash memory (500 ms pre-trigger/1500 ms post-trigger)
- Temperature range Operating, -18°-38°C (0°-100°F) Max. accuracy, 18°-29°C (65°-85°F)

#### **RibEye Advantages**

- Multiple point measurement: 12 points @ 10 kHz sample rate, captures linear and oblique loads
- Multiple-axis: measures X and Y positions for each LED
- Non-contact: no mechanical linkages between spine and ribs
- Shows seat-belt loading effects on all ribs
- Simple installation of LEDs
- Interfaces with existing data acquisition systems: open protocol for RibEye operation by DAS software
- Meets ISO 6487-2000 and SAE J211 specifications





#### **RibEye Components**

- A 12 LEDs mounted on ribs at measurement points
- **B** Two optical sensor heads to derive LED positions
- C LED connector blocks built into sensor heads
- **D** RibEye controller mounted in back of spine
- E Spine (existing spines can be modified, or new spines supplied)
- **F** Trunk box (power, trigger, and communications connectors), located externally

## **Other information**

- PC-based control software exports data in Diadem, ISO, or CSV formats (PC not included)
- Power requirement: 12-36 Volts DC
  8.3 W (data acquisition)
  5.3 W (idle)
  12.3 W (max.)
- U.S. Patent Number 7508530
- For more data, please see our website literature, including papers from the 2011 ESV Conference about third-party testing using the RibEye

www.boxborosystems.com

Ribeye vers.u				
Connect/Setup Plot Live	Display Expo	rt		
RibEye Status				
Connected - Idle			RibEye Type:	50th Male
Connect to RibEye via: IP Address			Serial Number:	00075
Ethernet T192.168.0.152 DISCONNECT			Calibration Date:	25 January 2010
Find RibEyes Firmware Version:				50 S0005
RibEye Installed in ATD:				
			HIII 50TH	
	Trigger Setting			
ISO Test Object		1 - Vehicle 1 💌	Rising Edge	
ISO Position 1 - Front Left 💌			Show Current XY	5
LED RIB	POSITION	ISO CODES	X (mm) Y (mn	n) 🔺
1 1	LEFT	1 1 RIBS 01 LE H3 DS X/Y	0.0 0.0	
2 2	LEFT	1 1 RIBS 02 LE H3 DS X/Y	0.0 0.0	
3 3	LEFT	1 1 RIBS 03 LE H3 DS X/Y	0.0 0.0	
4 4	LEFT	1 1 RIBS 04 LE H3 DS X/Y	0.0 0.0	
5 5	LEFT	1 1 RIBS 05 LE H3 DS X/Y	0.0 0.0	
6 6 7 1	LEFT RIGHT	1 1 RIBS 06 LE H3 DS X/Y 1 1 RIBS 01 RT H3 DS X/Y	0.0 0.0	
7 1 RTGHT 1 1 RTBS 0.1 RT RT 0.0 0.0 Image: Comparison of the state of the stat				
		Circular 🏬 Linear	Start Time	Stop Time
		-500	1500	
ERASE MEMORY Data to collect after Trigger (ms)				
2000		Data To Download (ms)		
DOWNLOAD DATA			Start Time	Stop Time
		-10	400	
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