DATA ACQUISITION

THE STS4 INTELLIDUCER NODE IS THE 4TH GENERATION OF OUR STRUCTURAL TESTING SYSTEM THAT HAS BEEN DESIGNED BY CIVIL ENGINEERS EXPRESSLY FOR STRUCTURAL TESTING IN HARSH AND DIFFICULT FIELD ENVIRONMENTS. THIS RUGGEDIZED DATA ACQUISITION SYSTEM IS UPGRADED WITH THE LATEST WIRELESS AND BATTERY TECHNOLOGY TO IMPROVE DATA TRANSMISSION RANGE AND TESTING TIME.

WE HAVE ALWAYS DEVELOPED OUR STS HARDWARE BASED ON 30+ YEARS OF FIELD-TESTING EXPERIENCE AS WELL AS FEEDBACK FROM ALL OF OUR CLIENTS AROUND THE WORLD. BECAUSE WE'VE SLOGGED THROUGH THE MUD, RAPPELLED FROM ROPES, AND SWAYED IN BUCKET TRUCKS—ALL IN BAD WEATHER—WE KNOW THAT EASE-OF-USE IS A MUST. THE SOFTWARE IS SIMPLE TO OPERATE, AND THE BUILT-IN SENSOR VERIFICATION ROUTINES ENSURE YOU'LL COLLECT QUALITY DATA. WITH THE SIGNIFICANT COST ASSOCIATED WITH FIELD WORK, THE STS4 WILL PAY FOR ITSELF AFTER JUST A FEW USES COMPARED TO TRADITIONAL DATA ACQUISITION SYSTEMS.

FEATURES

- + Turn-key plug-and-play system!
- + Modular rugged design
- + Intelliducer connector system
  - ▪ Sensors automatically identify themselves!
- + Li-Ion powered (~40 hours of testing time)
- + Standard 802.11b/g/n wireless communication with wired Ethernet backup
- + Integrated temperature measurement with every channel
- + Sample rate up to 1,000 S/s
- + Power Over Ethernet (IEEE 802.3af)
- + 8 GB internal flash memory
- + Various power conservation modes

APPLICATIONS

- + Diagnostic or Static Load Testing of bridges
- + Hydraulic Structures: Radial gates, navigation locks, miter gates, spillways, etc.
- + Towers: Wind or telecommunication tower testing
- + Laboratory Testing: Ideal to help students understand the capabilities of sensor measurements and data acquisition equipment as well as completing research grade experiments
- + Cable Forces: Capture acceleration of cables and calculate in-situ forces

SPECIFICATIONS

MODEL	STS4-4-IW3
MEASUREMENT TYPES: ANALOG INPUT TEMPERATURE INPUT	Analog Single-ended or Differential 3KΩ NTC Thermistor
PROCESSOR	Stellaris® Arm® Cortex™-M3
MAXIMUM SAMPLE RATE: ANALOG INPUT TEMPERATURE INPUT	1,000 S/s ~1 S/s (non-user adjustable)
SAMPLE MODE	Sequential
NODE-TO-NODE DATA SYNCHRONIZATION	+/-2.5 samples @ 1,000 S/s
PROGRAMMABLE GAIN STAGES	11
ANALOG TO DIGITAL CONVERTER (ADC)	24-bit ADC (Sigma delta)
VOLTAGE REFERENCE SYSTEM[1]	Ratiometric
ADC TEMPERATURE TOLERANCE	Gain drift 1ppm/°C
INPUTS	
ANALOG INPUTS	4
TEMPERATURE INPUTS (NTC THERMISTOR ONLY)	4
INPUT VOLTAGE RANGE GAIN STAGES[2]	
1: 0.25X SINGLE-ENDED	+40.0 V_{dc}
2: 0.50X SINGLE-ENDED	+20.0 V_{dc}
3: 1X DIFFERENTIAL	±5.00 V_{dc}
4: 2X DIFFERENTIAL	±2.50 V_{dc}
5: 4X DIFFERENTIAL	±1.25 V_{dc}
6: 8X DIFFERENTIAL	±625 mV
7: 16X DIFFERENTIAL	±312 mV
8: 32X DIFFERENTIAL	±156 mV
9: 64X DIFFERENTIAL	±78 mV
10: 128X DIFFERENTIAL	±39 mV
11: 256X DIFFERENTIAL	±19 mV
INPUT IMPEDANCE	> 1 MΩ
PROTECTION	Surge, over-voltage, and isolated
MEMORY	
SYSTEM MEMORY	16 MB (Operating System)
INTERNAL MICROSD MEMORY	8 GB
EXCITATION VOLTAGES	
V_X (PROGRAMMABLE)	+1 to +5 V_{dc} @ 20 mA (per channel)
V_{+15}	+15 V_{dc} @ 400 mA (combined)
EXCITATION VOLTAGE ACCURACY	
V_X (PROGRAMMABLE)	16-bit resolution, typ. 5 ppm/°C
V_{+15}	±5%
POWER	
LI-ION BATTERY	+10.8 V_{dc} (Nominal), 6.8 Ah, 73 Wh
DC SUPPLY	+24 V_{dc} @ 3.0 Amp (max for charging)
POWER OVER ETHERNET	+48 V_{dc} (IEEE 802.3af)
PROTECTION	over-voltage, reverse polarity, and ESD

MODEL	STS4-4-IW3
POWER CONSUMPTION[3]	
BASE CONSUMPTION	1.6 W
BASE CONSUMPTION (V_X & V_{+15} ON)	1.9 W
TYPICAL ACQUISITION[4]	2.2 W
STAND BY MODE	1.20 W
SLEEP MODE	< 0.01 W
COMMUNICATION	
WIRELESS	802.11b/g/n (2.412 - 2.484 GHz)
ETHERNET	10T-Base (Galvanically Isolated)
SENSOR INTERFACE	
CONNECTOR	10-Pin weatherproof Mil-Spec circular bayonet snap-lock.
INTELLIDUCER SUPPORT[5]	Yes
PHYSICAL	
ENCLOSURE	Combination aluminum extrusion and high strength molded parts.
WEATHER PROTECTION	Splash-proof
SIZE	8.0 x 4.5 x 3.25 in (203 x 115 x 83 mm)
WEIGHT	2.63 lb (1,200 g)
TEMPERATURE	
BATTERY & DC SUPPLY OPERATION	-4 °F to +140 °F (-20 °C to +60 °C)
BATTERY CHARGING	32 °F to +104 °F (0 °C to +40 °C)
STORAGE TEMPERATURE	-4 °F to +140 °F (-20 °C to +60 °C)
COMPLIANCE & WARRANTY	
WIRELESS MODULE	FCC, IC, and CE Certified
LI-ION BATTERY PACK	FCC Part 15 Class B, CE
WARRANTY	12 Months

[1] Ratiometric: The system reference voltages are all derived from the same high precision ultra-stable source. Any residual drift would change excitation and ADC reference effectively canceling drift out.

[2] Selectable through STS-LIVE, stated input voltage range ±10%.

[3] Power consumption is based on wireless as the default communication mode.

[4] Typical power drain is calculated with four 350Ω full bridge strain transducer connected to the system and collecting data at the highest sample rate possible. This does not include battery charging power consumption.

[5] Intelliducer support refers to BDI's intelligent sensor connector interface. The intelligent sensor interface contains the sensor ID, calibration factor, gain setting, etc. within a memory chip inside the sensor connector.

OPTIONS & ACCESSORIES

Intelliducer Connector – Required for use with STS Intelliducer Nodes, cable is connected and potted for a weatherproof seal.

Power Cable - 100-240 Vac to +24 Vdc power supply with M8 connector. 3 ft (1 m) European plug.

Ethernet Cable - Industrial shielded CAT5e Ethernet cable with IP67 RJ45 connectors on both ends. Supports PoE. Maximum length of 330 ft (100 m) per cable.

Power Cable - 100-240 Vac to +24 Vdc power supply with M8 connectors. 3 ft (1 m) North American plug.

OTHER STRUCTURAL TESTING COMPONENTS

Wireless Base Station

This rugged, battery-powered network hub generates the wireless network for all STS4 nodes and the user's computer. Link multiple WBS's to increase wireless network areas.

Automatic Load Position Tracker

Designed specifically for load testing bridges, this device wirelessly tracks the longitudinal position of the loading vehicle during the test so that data can be viewed as a function of load position rather than time.

SOFTWARE

STS-LIVE: Data Collection

+ Simple and intuitive user interface with no programming required
+ Tracks hardware performance and battery life
+ Selectable sample rates and test durations
+ Real-time data viewing with powerful graphing features
+ Apply filters and view frequency content
+ Standard TDMS or ACSII type file formats

STS-VIEW: Data Evaluation

+ Powerful post-processing application
+ Display data as a function of time, load position, or as a function of another sensor
+ Apply a variety of filters to the raw data
+ Generate graphs and output tables for reports
+ Create sensor groups and apply formulas to view structural responses such as neutral axis locations, axial forces, bending moments, etc.
+ Input Finite Element Analysis results and compare graphically
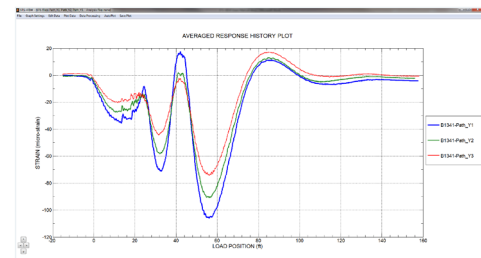
STS-CFA: Cable Forces

+ Designed to convert cable acceleration to in-situ forces
+ Input raw TDMS files from STS4 data collection
+ Automatically converts raw data to the frequency domain
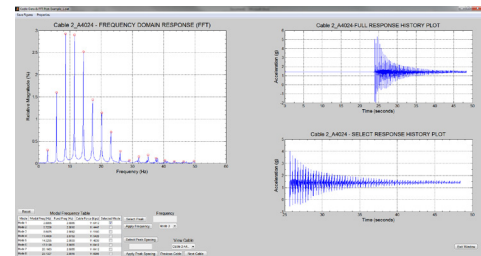
DATALOGGER INDONESIA | PT TESTINDO
Office: Jl. Radin Inten No 61 B Duren Sawit - Jakarta Timur
Mobile: 0812-2388-8451 | 0822-5870-6420
Email: sales@dataloggerindonesia.com
Website: www.dataloggerindonesia.com | www.dataloggerindonesia.co.id