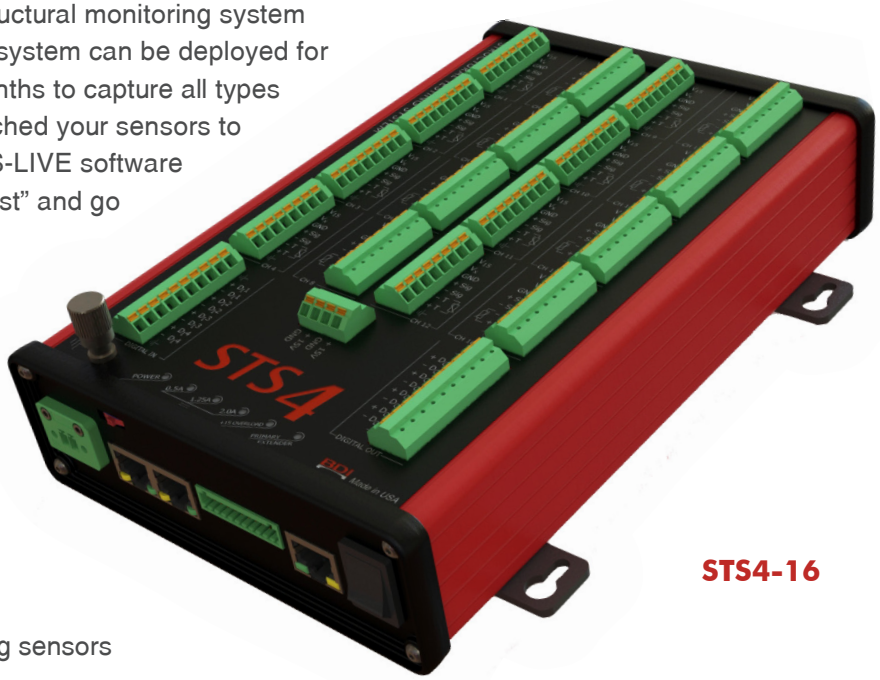
STRUCTURAL TESTING & MONITORING

We Stand Below Our Work!

STS4-16 STRUCTURAL TESTING & MONITORING SYSTEM

DESCRIPTION

The new STS4 16-Channel from BDI combines the simplicity of our STS live-load testing systems with our long-term structural monitoring system capabilities. This very economical and flexible system can be deployed for a quick one-day field test or for a weeks or months to capture all types of structural load responses. Once you've attached your sensors to the quick-connect terminal blocks, use the STS-LIVE software to configure the system in minutes. Hit "Run Test" and go home!



STS4-16

FEATURES

The standard STS4 16-Channel features:

- No programming required!
- Modular rugged design
- Expandable up to 1,000 channels
- Sample Rates up to 250 Hz per channel
- Quick-Connect terminal blocks
- Accepts a large range of structural testing sensors
- Variety of power options including solar & PoE
- Optional wireless communication
- All channels are lightning/surge protected

BUILT-IN FATIGUE MONITORING CAPABILITY

APPLICATIONS

- Highway and Railroad Bridges: Steel, concrete, timber, FRP
- Lift Bridges: Wirelessly record torques, displacements, and other parameters
- Hydraulic Structures: Radial gates, nav-lock, lift, and miter gates.
- Fatigue Monitoring: Trigger and store using rainflow algorithm
- Laboratory Testing: Ideal to help students understand the capabilities of sensor measurements and data acquisition equipment.
- Cable Forces: Use our BDI Accelerometers to help measure in-situ cable forces.

TECHNICAL SPECIFICATIONS

	STS4-16-TW3 (currently in development stage)	STS4-16-TE4 (wired)
Measurement Type	Single-ended or Differential: voltage, millivolts, digital	Single-ended or Differential: voltage, millivolts, digital
Processor	Stellaris® Arm® Cortex™-M3	Stellaris® Arm® Cortex™-M3
Memory Internal Memory: Internal MicroSD Flash:	 8 MB (Operating System) 2Gb Standard (Expandable to 16Gb), Auto measurement data back-up system.	 8 MB (Operating System) 2Gb Standard (Expandable to 16Gb), Auto measurement data back-up system.
Maximum Sample Rate	250 Hz	250 Hz
Programmable Gain Settings	13 gain settings, ranging from 1mV diff, to 10V single ended	13 gain settings, ranging from 1mV diff, to 10V single ended
Analog to Digital Resolution	24-bit ADC	24-bit ADC
A/D Convertor Type	Sigma delta	Sigma delta
Voltage Reference System	Ratiometric[1]	Ratiometric[1]
A/D Temperature Tolerance	Gain drift 1 ppm/°C	Gain drift 1 ppm/°C
Input Channels	16	16
Tempearature sensor Inputs (Thermistor)	One per input channel (16)	One per input channel (16)
Digital I/O Ports	1-in + 1-out COM Ports (Galvanic Isolated)	1-in + 1-out COM Ports (Galvanic Isolated)
COM Port	RS232/422	RS232/422
Excitation Voltages		
Vx (programmable)	+0 to +5 VDC @ 20mA (per channel)	+0 to +5 VDC @ 20mA (per channel)
V_{+15}	+15 VDC @ 500mA (combined)	+15 VDC @ 500mA (combined)
Analog Voltage Accuracy		
Vx (programmable)	16 bit resolution, typ. 5ppm/°C	16 bit resolution, typ. 5ppm/°C
V_{+15}	±5%	±5%
Signal Input Voltage Range	±5.0 VDC diff, 10V single ended	±5.0 VDC diff, 10V single ended
Power Supply		
Li-Ion Battery	+10.8VDC (Nominal), 6.8Ah, 98Wh	n/a
DC Supply	+24 VDC @ 3.0 Amp (max for charging)	+24 VDC @ 3.0 Amp (max for charging)
Power over Ethernet	+48 VDC per - IEEE 802.3af; +24VDC non-compliant	+24 VDC per - IEEE 802.3af; +24VDC non-compliant
Typical Power Consumption		
Base Consumption	0.7W	0.7W
Typical Acquisition[2]	1.5W	1.5W
Sleep Mode	<10mW	<10mW
Communication		
Wireless	802.11b/g/n (2.412 - 2.484 GHz)	n/a
Ethernet	10T-Base (TCP/IP)	10T-Base (TCP/IP)
Node-to-Node	Proprietary high speed Low Voltage Differential Signal communication protocol	Proprietary high speed Low Voltage Differential Signal communication protocol
Sensor Interface		
Connector	8-pin Terminal Input	8-pin Terminal Input
Intelliducer Support[3]	No	No
Physical		
Enclosure	Combination aluminum extrusion and high strength molded parts.	Combination aluminum extrusion and high strength molded parts.
Protection	IP50	IP50
Size	TBA	8.4in x 5.5in x 2.15in (213mm x 140mm x 55mm)
Weight	TBA	2.5lbs. (1.13kg.)
Operating Temperature Battery Operation: DC Supply Only:	 -10°C to +55°C -30°C to +65°C	 n/a -30°C to +65°C
Storage Temperature	-40°C to +85°C	-40°C to +85°C
Compliance		
CE	Coming Soon!	Coming Soon!
FCC	Coming Soon!	Coming Soon!
Wireless Module:	FCC, IC, and CE Certified	n/a
Computer Requirements for BDI Software		
WinSTS	Windows® XP, Vista, 7 (32 or 64-bit OS)	
STS-LIVE	Windows® XP, 7 (32 or 64-bit OS), MAC OS X 10.7 or Higher	
Interference To Third Party Software	Platform independent TCP/IP client/server, LabView[4] support	
Multi-Language Support	STS-LIVE	
Warranty	3 Years	3 Years

[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] Typical power drain is calculated with 16- 350 Ω full bridge strain transducer at 7.5VDC connected to the system and collecting data at the highest sample rate possible. This does not include battery charging power consumption.

[3] 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.

[4] BDI can provide a *.dll file for custom programming capabilities with LabView.

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