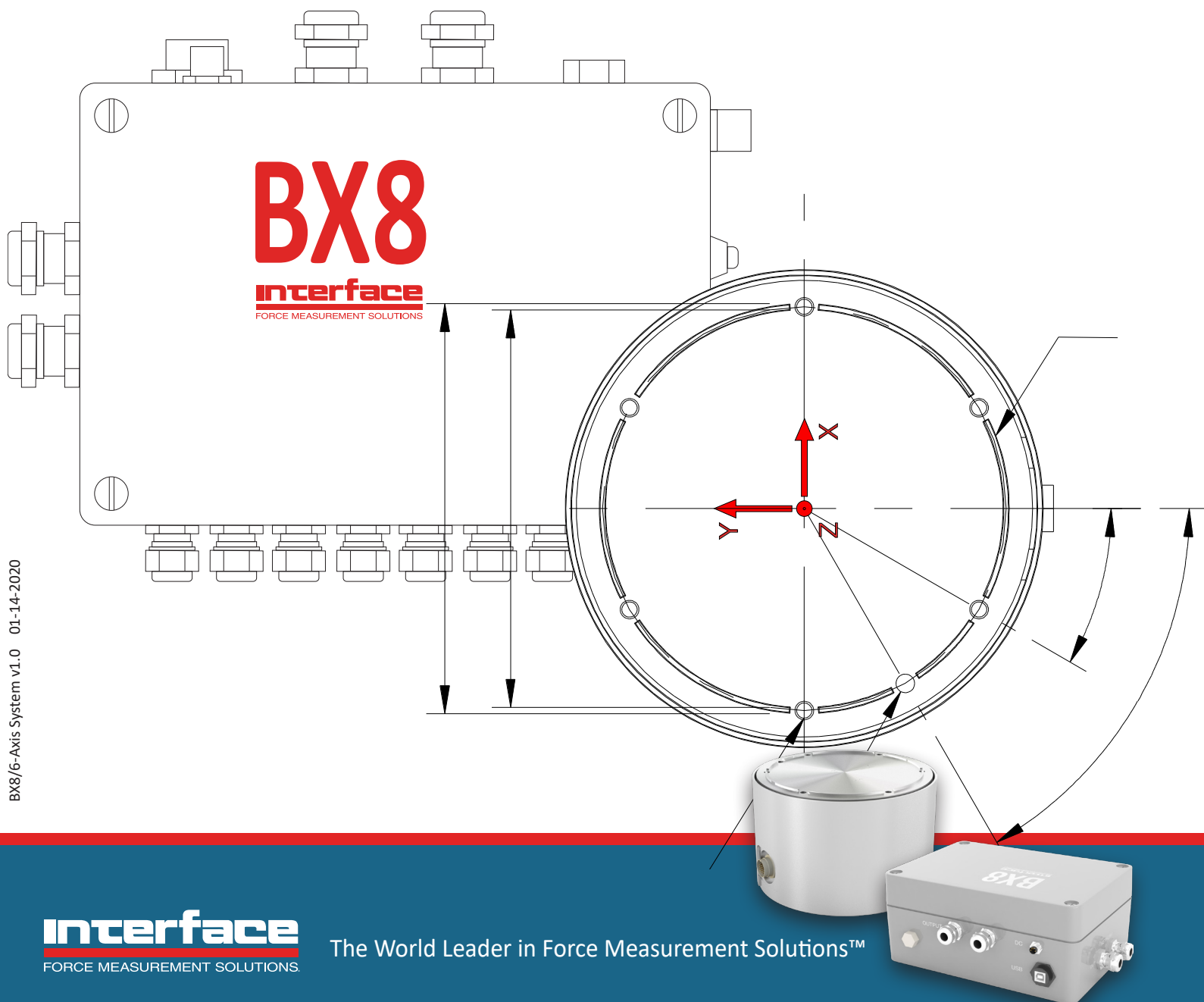


BX8

8-Channel Data Acquisition System and Amplifier

6-Axis

6A Series 6-Axis Force and Torque Load Cell (Fx Fy Fz Mx My Mz)



BX8/6-Axis System v1.0 01-14-2020

interface
FORCE MEASUREMENT SOLUTIONS

The World Leader in Force Measurement Solutions™

BX8

8-Channel Data Acquisition System and Amplifier

6-Axis

6A Series 6-Axis Force and Torque Load Cell (Fx Fy Fz Mx My Mz)

Interface has created the ideal 6-axis measurement system that combines powerful performance with reliability and can be operated by users of all experience levels.

This solution has been successfully used in aerospace, automotive, industrial automation, medical, product testing and more.



Introducing The Interface BX8/6-Axis Force & Torque Measurement System

A system comprised of Interface Models BX8 Data Acquisition Instrument and Model 6AXX 6-Axis Load Cell have been designed to streamline applications that require the measurement of 6 simultaneous axes and need the data captured and stored at a very fast rate. This solution is easy enough for the inexperienced user but powerful enough for the sophisticated test engineer.

With this Interface product anyone can be up and measuring in minutes.

The BX8 is ideally suited for use with 6-axis sensors requiring matrix math load calculations. The sensor's coefficient matrix can be loaded internally into the BX8 via the BlueDAQ software and the analog outputs are actively scaled according to the calculations. All channels are sampled simultaneously and fully synchronized. When the BX8 is purchased with a 6-axis sensor, the system can arrive pre-configured and ready to

BX8-AS

- Industrial Enclosure
- M16, 24-pin Connector
- Alternate Connection through screw terminals
- 8 each scaled analog outputs

BX8-HD15

- Lab Enclosure
- 8 each high density 15-pin DSub Connectors
- 8 each scaled analog outputs

BX8-HD44

- Lab Enclosure
- 4 each high density 44-pin DSub Connectors
- 8 each scaled analog outputs

6-Axis

- Capacities available Force: 11.2 lbf to 22.5K lbf (50 N to 100K N).
Torque: 8.85 lbf to 88.5K lbf (1 Nm to 10K Nm).
- Load in each axis is calculated as the cross-product between the output on each channel and the 36-term coefficient matrix.
- There is also a calculation to translate the calculated moments from the measurement origin to the point of application.



BX8 Models Available

- BX8-AS
- BX8-HD15
- BX8-HD44



6-Axis Models Available

- 6A27
- 6A40
- 6A68
- 6A80
- 6A110
- 6A130
- 6A154
- 6A175
- 6A225

BX8 6-Axis

The BX8/6-Axis System Consists Of The BX8, 6-Axis, And BlueDAQ Software

The BX8 is the newest addition to Interface's family of measurement systems. Easy enough for the inexperienced user but powerful enough for the sophisticated test engineer, with the BX8 anyone can be up and measuring in minutes. Designed specifically for use with mV/V output sensors such as force, torque and pressure along with PT1000 thermocouples, and $\pm 10\text{V}$ output sensors, the BX8 puts graphing, logging and display capabilities at a user's fingertips. The BX8 also includes $\frac{1}{4}$ and $\frac{1}{2}$ bridge completion for seamless integration of strain gage measurements. Eight independent, user configurable, 16-bit scalable analog outputs can be connected to external devices. Interface's 6-Axis load cell measures forces simultaneously in 3 mutually perpendicular axes and 3 simultaneous torques about those same axis. Six full bridges provide mV/V output on 6 independent channels.



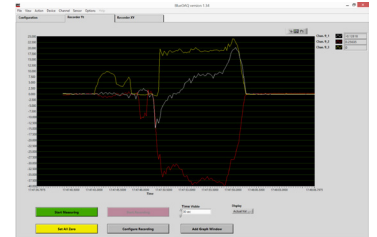
BX8

- 8-Channel Synchronized Sampling
- 48K Samples/Sec/Channel
- 24-Bit Internal Resolution
- 16 digital Input/Outputs
- 8 scaled analog outputs



6-Axis

- Force and Torque in all 6 axes
- Compact Size
- Low Crosstalk
- Temperature Compensated



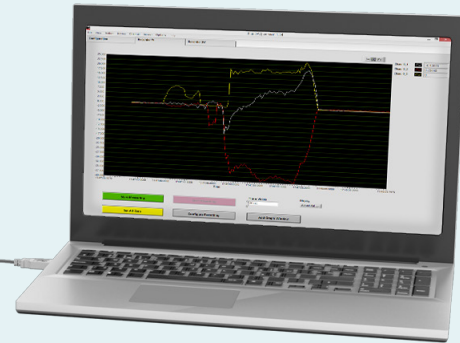
BlueDAQ Software

- Scale Input/Output
- Graphing, logging, & display software
- Force and moment value calculation

System Architecture



BX8-HD44



PC BlueDAQ Software

Performance

| | |
|--|---|
| Accuracy Class - % | 0.05 |
| Nonlinearity - % range | +/- 0.02 |
| Sample Rate - per channel - samples/sec | 48,000 synchronous |
| Digital Output Data Rate - values/sec | 0.75 to 48,000 |
| Resolution - bit | 24 |
| Resolution - noise limited | > 100,000 parts @ 10/s data rate > 20,000 parts @ 2000/s data rate > 9,400 parts @ 12,000/s data rate |
| Signal Input Filter - (3dB) - Hz | 28, 850, 11.4k 1st order, switchable |
| Digital Output Filter - (3dB) - Hz | 0.18 to 15K includes high pass, low pass, band pass and band stop |
| Individually configurable for each channel | |

Sensor Inputs

| | |
|--|--|
| Input Channels | 8 |
| Bridge Input Range - mV/V | 2.0, 3.5, or 7.0 |
| Bridge Input Impedance - M Ω - (pF) | > 20 (300) |
| Bridge Excitation Voltage - VDC | 8.75, 5, or 2.5 |
| Bridge Excitation Current - mA | 135 |
| Bridge Input Type - wire | 4 or 6 |
| Bridge Completion - Ω | $\frac{1}{4}$ and $\frac{1}{2}$, 120, 350 or 1000 |
| CMMR - dB - DC - 100 Hz | >120, >100 |
| Analog Input Range - VDC | +/-10 |
| Analog Input Resistance - M Ω | 10 |
| PT1000 thermocouple - Ω | 1000 |

Accuracy - (Max Error)

| | | |
|------------------------|-------|---|
| Nonlinearity – %FS | ± 0.1 | – |
| Hysteresis – %FS | ± 0.1 | – |
| Nonrepeatability – %RO | ± 0.5 | – |
| Creep, in 20 min – % | ± 0.1 | – |

Temperature

| | | |
|-------------------------------|--------------|-------------|
| Effect on Zero – %RO / °C MAX | ± 0.01 | – |
| Effect on Output – % / °C MAX | ± 0.05 | – |
| Compensated Range °C | -10 to +70* | -20 to +70 |
| °F | +14 to +158* | -4 to +158 |
| Operating Range °C | -10 to +85 | 0 to +50 |
| °F | +14 to +185 | +32 to +122 |

* Temperature compensation not available on Models 6A27 and 6A40

Electrical

| | | |
|-------------------------------|---------|---|
| Rated Output – mV/V (Nominal) | ±0.4 | – |
| Excitation Voltage – V MAX | 5 | – |
| Crosstalk – % | ±1 | – |
| Zero Balance – mV/V | < 2 | – |
| Input Resistance (6A27) – Ω | 1K ±10 | – |
| Output Resistance (6A27) – Ω | 1K ±10 | – |
| Input Resistance – Ω | 350 ±10 | – |
| Output Resistance – Ω | 350 ±10 | – |

Power

| | | |
|--------------|---|-------|
| Supply – VDC | – | 12-28 |
| Supply – Wat | – | < 12 |

Mechanical

| | | |
|-------------------------|------|------------|
| Safe Overload – %CAP | 150 | – |
| Ultimate Overload – %RO | 300 | – |
| Protection Level | – | IP67 |
| Connection Type | – | 24-pin M16 |
| Cable Length m | 5 | – |
| ft | 16.4 | – |

Analog Outputs

| | | |
|--|---|---|
| Outputs types – V – mA | – | ±10, ±5, 0-5, 0-10, 4-20, 0-20 |
| Individually configurable for each channel | – | |
| Analog Output Scaling | – | Via software, active scaling capability |
| Analog Output Resolution – bit | – | 16 over scaled range |
| Analog Output Update Rate – Hz | – | Up to 48K |

Digital Inputs/Outputs

| | | |
|---------------------------------------|---|--|
| DIOs | – | 16 configurable |
| | | 16 integer, 48K, raw data |
| | | 24 integer, 24K, raw data |
| AUSB - 8 channel packets – bit – /sec | – | 32 floating point, 9.6K, scaled data |
| | | 6-axis sensor: 32 floating point, 6K scaled data |

BX8 6-Axis

Features & Benefits

BX8 -

- Internal Calculation of Axis Load Values for 6-Axis Sensors
- Active Scaling of Analog Outputs according to Internal Calculations
- ±5V, ±10V, 4-20mA, and 0-20 mA Outputs
- ZERO button for 8-channel simultaneous tare
- Galvanic isolation: Analog input, analog output, digital I/O, USB

6-Axis -

- Capacities: Force N(lbf) / Torque Nm(lbf-in) – 50(11.2)/1(8.85) to 500K(112K)/20K(177K)
- Force and moment values MUST be calculated using supplied 36-term coefficient matrix

Options

BX8 -

- EtherCat
- CANbus/CANopen

To learn more about the Interface BX8/6-Axis Force & torque measurement system or other force measurement solutions call 480-948-5555.

Interface is the world's trusted leader in technology, design and manufacturing of force measurement solutions.

Our clients include a "who's who" of the aerospace, automotive and vehicle, medical device, energy, industrial manufacturing, test and measurement industries.

Interface engineers around the world are empowered to create high-level tools and solutions that deliver consistent, high quality performance. These products include load cells, torque transducers, multi-axis sensors, wireless telemetry, instrumentation and calibration equipment.

Interface, Inc., was founded in 1968 and is a US-based, woman-owned technology manufacturing company headquartered in Scottsdale, Arizona.