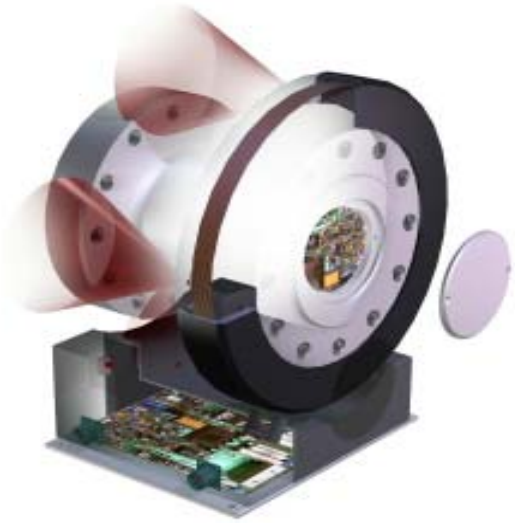
90415 IRT Series

INFRARED ROTATING TORQUE SENSOR



The 90415 IRT (infrared rotating torque) sensor is based on our popular 01251 model, and now includes a dual signal output featuring one analog signal (+/-5V, +/-10V, 2.5 +/-2.5V or 4-20mA) and a frequency ouput (10kHz +/-5kHz, 60kHz +/-20kHz, or 60kHz +/-30kHz). All setup and configuration settings are completed through a very easy to use USB based GUI package and feature selectable outputs, filter settings and range settings. This sensor is designed for applications such as dyna-mometers and test stands where a high performance, high noise immunity, non-contact torque measurement is required.

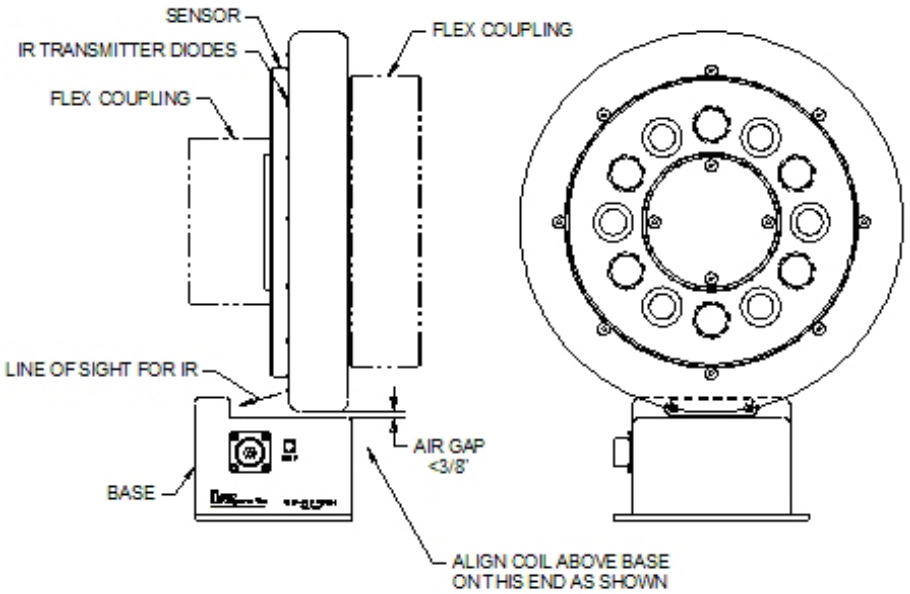
The rotating electronics of sensor are powered inductively. The rectified, regulated voltage is then sent to a strain gage bridge which senses applied torque. The signal is converted on-board the rotating torque sensor into digital format which is transmitted back to the base unit via IR diodes and receivers. Once captured by the receiver base, it is processed and converted back to the desired signal output.

DESIGN OPTIONS

- Thrust axis measurement
- Integral coupling features
- RPM and angle measurement
- On-board temperature measurement inputs

FEATURES

- High frequency response and accuracy
- Voltage, current and frequency signal outputs
- No bearings or moving parts
- On-board shunt calibration
- Increased gap tolerance for the base unit
- Signal interrupt indication
- Single piece sensing element
- High immunity to signal noise
- No brush induced signal interference
- High operating RPM
- Custom flange configurations available
- Selectable digital filters down to 1Hz
- No pots or dip switches
- Software utility via USB interface
- Software allows for realtime data recording.
- Selectable output ranges.



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SPECIFICATIONS

Transmitter Electronics

Resolution ..... 16 bits
Accuracy ..... .01%*
Sample Rate ..... 5000 samples/second
Filter ..... 4-pole Butterworth low pass @ 1000Hz
Power Input ..... provided by base
Temperature Range ..... -20 to +85 deg C
Temperature Drift ..... .005% per deg C max

* Transmitter electronics only. Performance will depend highly on sensing element design. See calibration data sheet supplied for information on each sensor system.

Receiver Base

Resolution ..... 16 bits
Accuracy ..... .01%
Analog Output Voltage (selectable)..... +/-10Vdc
..... +/-5Vdc
..... 2.5V +/-2.5Vdc
Frequency Output (selectable) ..... 60kHz +/-20kHz
..... 60kHz +/-30kHz
..... 10kHz +/-5kHz
Analog Output Current ..... 12mA +/-8mA (4 - 20mA)
External Shunt Inputs (3) ..... 5Vdc @2mA to 24Vdc @12mA
Power Input ..... 12VDC +/-5% @ 4A **
Error Relay Contact Rating ..... 500mA, 24VDC max
Error Relay Contact type ..... SPDT colse on error
Temperature Range ..... -20 to +70 deg C
Temperature Drift ..... .005% per deg C max

** 120VAC to 12VDC @ 4A power supply is included.

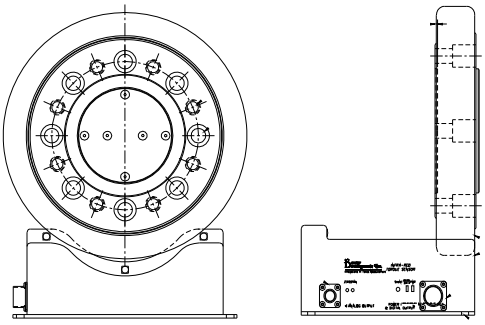
Typical Sensor Performance

Accuracy ..... 0.05% FS
Maximum RPM 15,000
Compensated temperature ..... +20 to +70°C
Useable temperature ..... -20 to +70°C
Temp effect on zero ..... 0.0035% of F.S./°F
Temp effect on span ..... 0.0035% of Rdg./°F
Fullscale ranges .... 1k to 240kin-lbs (100 to 27kNm)

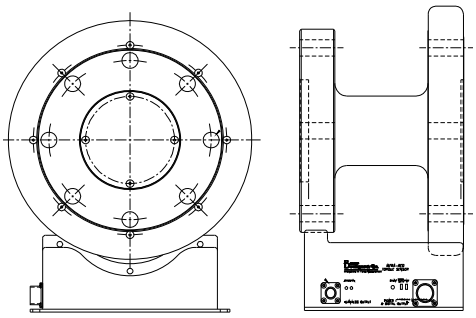
TYPICAL SENSOR CONFIGURATIONS:

Please contact us for specific drawings and capacities.

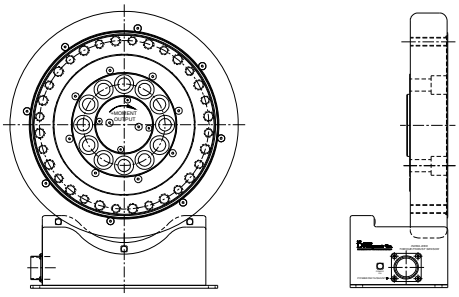
Single Flange Style



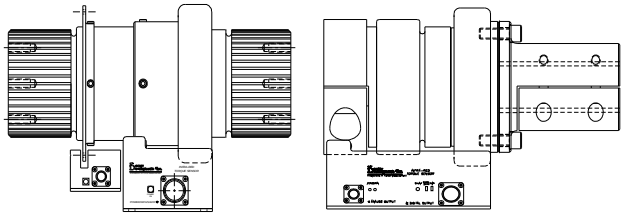
Dual Flange Style



Torque and Thrust Style



Custom Interfaces



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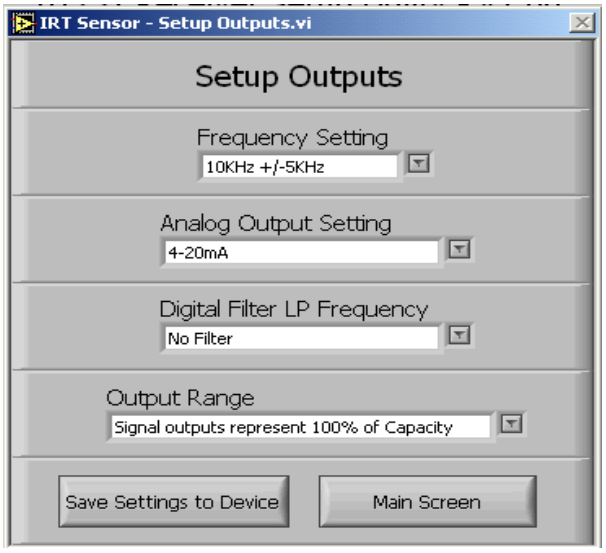
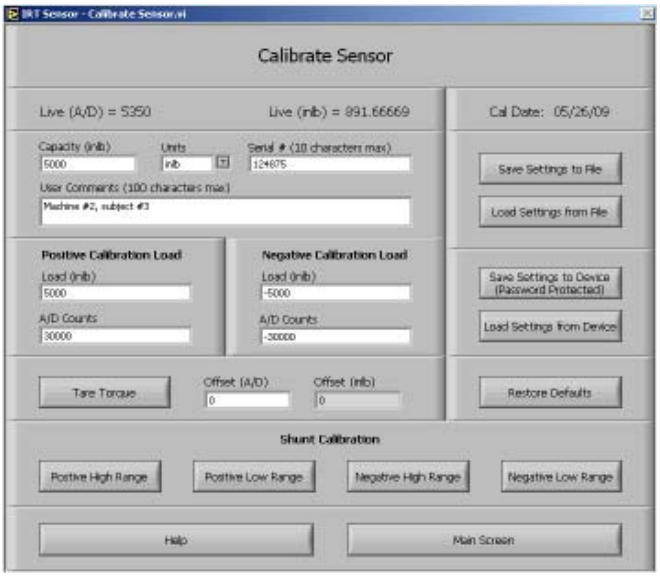
GUI SOFTWARE INTERFACE

Setup Signal Outputs:
Configure the type of signal outputs you would like; frequency (3 types) or Analog (3 types). Also configure the low pass filter setting and the desired output range.



Main Display Screen:
This screen will display the live readings being acquired by the torque sensor. Use this screen to see if your setup is performing as desired and to provide a real time numerical display. Data recording is also triggered from this screen.

Calibration Setup:
This screen allows the operator to view the current sensor calibration values, as well as conduct a new calibration.



Data Recording Screen:
This screen is displayed when the operator begins storing data via the USB connection. It provides a real time display of the data being stored. The stored data can also be viewed in a similar manner.