

|                                                                                                                                                                                                             |                 |                                         |                                   |              |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------------------------------|-----------------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------|---------------|------------|--------------|--------------|-----------------|-----------------|-----------------|-----------------|--------------|
| Model Number<br><b>4115K-08A</b>                                                                                                                                                                            |                 | <b>ROTARY TRANSFORMER TORQUE SENSOR</b> |                                   |              | Revision: G<br>ECN #: 44335                                                                                                                                                                                                                                                                                                                                |  |             |               |            |              |              |                 |                 |                 |                 |              |
| <b>Performance</b>                                                                                                                                                                                          |                 | <b>ENGLISH</b>                          | <b>SI</b>                         |              | <b>OPTIONAL VERSIONS</b>                                                                                                                                                                                                                                                                                                                                   |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Measurement Range(Full Scale Capacity)                                                                                                                                                                      |                 | 2000 in-lb                              | 225 Nm                            | [1]          | Optional versions have identical specifications and accessories as listed for the standard model except where noted below. More than one option may be used.                                                                                                                                                                                               |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Sensitivity(± 15 %)(output at rated capacity)                                                                                                                                                               |                 | 2.5 mV/V                                | 2.5 mV/V                          | [1][3]       |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Non-Linearity                                                                                                                                                                                               |                 | ≤ 0.05 % FS                             | ≤ 0.05 % FS                       | [3]          |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Hysteresis                                                                                                                                                                                                  |                 | ≤ 0.05 % FS                             | ≤ 0.05 % FS                       | [3]          |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Non-Repeatability                                                                                                                                                                                           |                 | ≤ 0.03 % FS                             | ≤ 0.03 % FS                       | [3]          |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| <b>Environmental</b>                                                                                                                                                                                        |                 |                                         |                                   |              | <b>NOTES:</b><br>[1]Nominal.<br>[2]Recommended 10 VAC RMS.<br>[3]FS - Full Scale.<br>[4]Over compensated operating temperature range.<br>[5]Mounting per AND10262 and AND20002.<br>[6]See PCB Declaration of Conformance PS062 for details.                                                                                                                |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Overload Limit                                                                                                                                                                                              |                 | 6000 in-lb                              | 675 Nm                            |              |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Temperature Range(Operating)                                                                                                                                                                                |                 | -65 to 225 °F                           | -54 to 107 °C                     |              |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Temperature Range(Compensated)                                                                                                                                                                              |                 | +70 to +170 °F                          | +21 to 77 °C                      |              |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Temperature Effect on Output(Maximum)                                                                                                                                                                       |                 | ± 0.002 %Reading/°F                     | ± 0.0036 %Reading/°C              | [4]          |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Temperature Effect on Zero Balance(Maximum)                                                                                                                                                                 |                 | ± 0.002 %FS/°F                          | ± 0.0036 %FS/°C                   | [4][3]       | <b>SUPPLIED ACCESSORIES:</b><br>Model 180-019A 5-socket mating connector for Series 3100, 4100, 4200 torque sensors<br>Model 8113-105A Relay activated precision shunt calibration module                                                                                                                                                                  |  |             |               |            |              |              |                 |                 |                 |                 |              |
| <b>Electrical</b>                                                                                                                                                                                           |                 |                                         |                                   |              |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Bridge Resistance                                                                                                                                                                                           |                 | 350 Ohm                                 | 350 Ohm                           | [1]          |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Excitation Frequency                                                                                                                                                                                        |                 | 3.28 kHz                                | 3.28 kHz                          |              |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Excitation Voltage                                                                                                                                                                                          |                 | 2 to 10 VAC rms                         | 2 to 10 VAC rms                   | [2]          |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Insulation Resistance                                                                                                                                                                                       |                 | >5,000,000 kohm                         | >5,000,000 kohm                   |              | <table><tr><td>Entered: JM</td><td>Engineer: JSD</td><td>Sales: KWW</td><td>Approved: JM</td><td>Spec Number:</td></tr><tr><td>Date: 7/23/2015</td><td>Date: 7/23/2015</td><td>Date: 7/23/2015</td><td>Date: 7/23/2015</td><td><b>18488</b></td></tr></table>                                                                                              |  | Entered: JM | Engineer: JSD | Sales: KWW | Approved: JM | Spec Number: | Date: 7/23/2015 | Date: 7/23/2015 | Date: 7/23/2015 | Date: 7/23/2015 | <b>18488</b> |
| Entered: JM                                                                                                                                                                                                 | Engineer: JSD   | Sales: KWW                              | Approved: JM                      | Spec Number: |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Date: 7/23/2015                                                                                                                                                                                             | Date: 7/23/2015 | Date: 7/23/2015                         | Date: 7/23/2015                   | <b>18488</b> |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Zero Balance                                                                                                                                                                                                |                 | ≤ 2 % FS                                | ≤ 2 % FS                          | [3]          |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Bridge Current(at 5 VAC)                                                                                                                                                                                    |                 | 50 mA                                   | 50 mA                             |              |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| <b>Physical</b>                                                                                                                                                                                             |                 |                                         |                                   |              |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Size (Shaft Length x Housing Length x Housing Height)                                                                                                                                                       |                 | 9.56 in x 8.25 in x 6.00 in             | 242.82 mm x 209.55 mm x 152.40 mm |              | <div><div><p><b>PCB Load &amp; Torque</b><br/>24350 Indoplex Circle<br/>Farmington Hills, MI 48335<br/>UNITED STATES<br/>Phone: 866-684-7107<br/>Fax: 716-684-0987<br/>E-Mail: ltinfo@pcbloadtorque.com<br/>Web site:<br/>http://www.pcbloadtorque.com</p></div></div> |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Weight                                                                                                                                                                                                      |                 | 47 lb                                   | 21.3 kg                           |              |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Mounting                                                                                                                                                                                                    |                 | Flange w/ Splined Shaft                 | Flange w/ Splined Shaft           | [5]          |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Sensing Element                                                                                                                                                                                             |                 | Strain Gage                             | Strain Gage                       |              |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Housing Material                                                                                                                                                                                            |                 | Black Oxidized Steel                    | Black Oxidized Steel              |              |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Shaft Material                                                                                                                                                                                              |                 | Steel                                   | Steel                             |              |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Electrical Connector                                                                                                                                                                                        |                 | MS3102A-14S-5P                          | MS3102A-14S-5P                    |              |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Torsional Stiffness                                                                                                                                                                                         |                 | 204,000 in-lb/radian                    | 23,000 N-m/radian                 |              |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Rotating Inertia                                                                                                                                                                                            |                 | 0.0052 in-lb sec <sup>2</sup>           | 0.0006 N-m sec <sup>2</sup>       |              |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| Maximum Speed                                                                                                                                                                                               |                 | 15,000 RPM                              | 15,000 RPM                        |              |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
|                                                                                                                            |                 |                                         |                                   |              |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |
| <div><p>All specifications are at room temperature unless otherwise specified.<br/>In the interest of constant product improvement, we reserve the right to change specifications without notice.</p></div> |                 |                                         |                                   |              |                                                                                                                                                                                                                                                                                                                                                            |  |             |               |            |              |              |                 |                 |                 |                 |              |



[6]  
All specifications are at room temperature unless otherwise specified.  
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