

| WIRING DIAGRAMS                         |  | LOCKNUT LN-P30       |         | SPECIFICATIONS  |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
|---|--|----------------------|---------|---|---------------------|-------------------|------------------------------|----------------------|------|---|--------------------|---------------------------------------|------------------|-----------------|---|----------------|---------|-------------------------|---------------------|---|---------|-------------------------|---------|-----------------------------|--------|-----------------|------------|--------------------------------|-------|----------------------------|--------------|-------------------------------|--------------|-----------------------|--------------|-------------------------------|------------------|-----------------------|----------------------------------|-----------|--|----------------|-------------|-----------|--|--------------|-----------------------|---------------|-------------------------|---------------------|--------|---------------|------------------------------|----------|----|---------------------|-------------------------------|
| <p>OUTPUT: AP6X</p>                     |  |                      |         | <table border="1"> <tr><td>OPERATING VOLTAGE</td><td>10-30 VDC</td></tr> <tr><td>RIPPLE</td><td>≤10%</td></tr> <tr><td>HYSTERESIS (DIFFERENTIAL TRAVEL)</td><td>3-15% (5% TYPICAL)</td></tr> <tr><td>VOLTAGE DROP ACROSS CONDUCTING SENSOR</td><td>≤1.8 V at 200 mA</td></tr> <tr><td>OUTPUT FUNCTION</td><td>NORMALLY OPEN<br/>3-WIRE DC SELF-CONTAINED</td></tr> <tr><td>TTL COMPATIBLE</td><td>NO</td></tr> <tr><td>SHORT-CIRCUIT PROTECTED</td><td>YES</td></tr> <tr><td>TRIGGER CURRENT FOR OVERLOAD PROTECTION</td><td>≥220 mA</td></tr> <tr><td>CONTINUOUS LOAD CURRENT</td><td>≤200 mA</td></tr> <tr><td>LEAKAGE (OFF-STATE) CURRENT</td><td>&lt;10 μA</td></tr> <tr><td>NO-LOAD CURRENT</td><td>5.5-9.5 mA</td></tr> <tr><td>TIME DELAY BEFORE AVAILABILITY</td><td>≤8 ms</td></tr> <tr><td>POWER-ON EFFECT PROTECTION</td><td>INCORPORATED</td></tr> <tr><td>POLARITY INVERSION PROTECTION</td><td>INCORPORATED</td></tr> <tr><td>WIRE BREAK PROTECTION</td><td>INCORPORATED</td></tr> <tr><td>PROTECTION AGAINST TRANSIENTS</td><td>2 kV, 1 ms, 1 kΩ</td></tr> <tr><td>OPERATING TEMPERATURE</td><td>-25°C to +70°C (-13°F to +158°F)</td></tr> <tr><td>ENCLOSURE</td><td>MEETS NEMA 1, 3, 4, 6, 13 AND IEC IP67</td></tr> <tr><td>SHOCK</td><td>30 g, 11 ms</td></tr> <tr><td>VIBRATION</td><td>55 Hz, 1 mm AMPLITUDE<br/>(IN ALL 3 PLANES)</td></tr> <tr><td>LED FUNCTION</td><td>RED: OUTPUT ENERGIZED</td></tr> <tr><td>SENSING RANGE</td><td>15 mm = .591" (NOMINAL)</td></tr> <tr><td>SWITCHING FREQUENCY</td><td>500 Hz</td></tr> <tr><td>REPEATABILITY</td><td>≤2% of NOMINAL SENSING RANGE</td></tr> <tr><td>SHIELDED</td><td>NO</td></tr> <tr><td>MATING PLUGS/CABLES</td><td>4-PIN "MINIFAST" CONSTRUCTION</td></tr> </table> |                     | OPERATING VOLTAGE | 10-30 VDC                    | RIPPLE               | ≤10% | HYSTERESIS (DIFFERENTIAL TRAVEL)  | 3-15% (5% TYPICAL) | VOLTAGE DROP ACROSS CONDUCTING SENSOR | ≤1.8 V at 200 mA | OUTPUT FUNCTION | NORMALLY OPEN<br>3-WIRE DC SELF-CONTAINED | TTL COMPATIBLE | NO      | SHORT-CIRCUIT PROTECTED | YES                 | TRIGGER CURRENT FOR OVERLOAD PROTECTION | ≥220 mA | CONTINUOUS LOAD CURRENT | ≤200 mA | LEAKAGE (OFF-STATE) CURRENT | <10 μA | NO-LOAD CURRENT | 5.5-9.5 mA | TIME DELAY BEFORE AVAILABILITY | ≤8 ms | POWER-ON EFFECT PROTECTION | INCORPORATED | POLARITY INVERSION PROTECTION | INCORPORATED | WIRE BREAK PROTECTION | INCORPORATED | PROTECTION AGAINST TRANSIENTS | 2 kV, 1 ms, 1 kΩ | OPERATING TEMPERATURE | -25°C to +70°C (-13°F to +158°F) | ENCLOSURE | MEETS NEMA 1, 3, 4, 6, 13 AND IEC IP67 | SHOCK          | 30 g, 11 ms | VIBRATION | 55 Hz, 1 mm AMPLITUDE<br>(IN ALL 3 PLANES) | LED FUNCTION | RED: OUTPUT ENERGIZED | SENSING RANGE | 15 mm = .591" (NOMINAL) | SWITCHING FREQUENCY | 500 Hz | REPEATABILITY | ≤2% of NOMINAL SENSING RANGE | SHIELDED | NO | MATING PLUGS/CABLES | 4-PIN "MINIFAST" CONSTRUCTION |
| OPERATING VOLTAGE                       | 10-30 VDC                                  |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| RIPPLE                                  | ≤10%                                       |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| HYSTERESIS (DIFFERENTIAL TRAVEL)        | 3-15% (5% TYPICAL)                         |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| VOLTAGE DROP ACROSS CONDUCTING SENSOR   | ≤1.8 V at 200 mA                           |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| OUTPUT FUNCTION                         | NORMALLY OPEN<br>3-WIRE DC SELF-CONTAINED  |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| TTL COMPATIBLE                          | NO   |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| SHORT-CIRCUIT PROTECTED                 | YES  |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| TRIGGER CURRENT FOR OVERLOAD PROTECTION | ≥220 mA                                    |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| CONTINUOUS LOAD CURRENT                 | ≤200 mA                                    |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| LEAKAGE (OFF-STATE) CURRENT             | <10 μA                                     |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| NO-LOAD CURRENT                         | 5.5-9.5 mA                                 |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| TIME DELAY BEFORE AVAILABILITY          | ≤8 ms                                      |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| POWER-ON EFFECT PROTECTION              | INCORPORATED                               |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| POLARITY INVERSION PROTECTION           | INCORPORATED                               |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| WIRE BREAK PROTECTION                   | INCORPORATED                               |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| PROTECTION AGAINST TRANSIENTS           | 2 kV, 1 ms, 1 kΩ                           |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| OPERATING TEMPERATURE                   | -25°C to +70°C (-13°F to +158°F)           |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| ENCLOSURE                               | MEETS NEMA 1, 3, 4, 6, 13 AND IEC IP67     |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| SHOCK                                   | 30 g, 11 ms                                |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| VIBRATION                               | 55 Hz, 1 mm AMPLITUDE<br>(IN ALL 3 PLANES) |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| LED FUNCTION                            | RED: OUTPUT ENERGIZED                      |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| SENSING RANGE                           | 15 mm = .591" (NOMINAL)                    |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| SWITCHING FREQUENCY                     | 500 Hz                                     |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| REPEATABILITY                           | ≤2% of NOMINAL SENSING RANGE               |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| SHIELDED                                | NO   |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| MATING PLUGS/CABLES                     | 4-PIN "MINIFAST" CONSTRUCTION              |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| SHORT-CIRCUIT AND OVERLOAD PROTECTED    |  |                      |         | <table border="1"> <tr> <td>MATERIAL</td> <td>PA 12-GF30<br/>PLASTIC BARREL</td> <td>3RD ANGLE PROJECTION</td> <td rowspan="2"> </td> <td rowspan="2"> <b>TURCK INC</b><br/>           3000 CAMPUS DRIVE<br/>           MINNEAPOLIS, MN 55441<br/>           PHONE: (612) 553-9224         </td> </tr> <tr> <td>FINISH</td> <td></td> <td></td> </tr> <tr> <td>DRWN</td> <td>RJP</td> <td>DATE</td> <td>4/27/92</td> <td>PART NO.</td> <td>Ni15-P30-AP6X-B2141</td> </tr> <tr> <td>CHKD</td> <td></td> <td>DATE</td> <td></td> <td>SIZE</td> <td>B</td> </tr> <tr> <td>TMI</td> <td></td> <td>DATE</td> <td></td> <td>ID NO.</td> <td>4697700</td> </tr> <tr> <td colspan="2">DIMENSIONS ARE IN</td> <td colspan="2">INCHES</td> <td>SCALE</td> <td>NONE</td> </tr> <tr> <td colspan="2"></td> <td colspan="2">mm</td> <td>BPQD-D\4697700</td> <td>SHEET</td> </tr> <tr> <td colspan="2"></td> <td colspan="2"></td> <td></td> <td>OF</td> </tr> </table>   |                     | MATERIAL          | PA 12-GF30<br>PLASTIC BARREL | 3RD ANGLE PROJECTION |      | <b>TURCK INC</b><br>3000 CAMPUS DRIVE<br>MINNEAPOLIS, MN 55441<br>PHONE: (612) 553-9224 | FINISH             |                                       |                  | DRWN            | RJP                                       | DATE           | 4/27/92 | PART NO.                | Ni15-P30-AP6X-B2141 | CHKD                                    |         | DATE                    |         | SIZE                        | B      | TMI             |            | DATE                           |       | ID NO.                     | 4697700      | DIMENSIONS ARE IN             |              | INCHES                |              | SCALE                         | NONE             |                       |                                  | mm        |  | BPQD-D\4697700 | SHEET       |           |  |              |                       |               | OF                      |                     |        |               |                              |          |    |                     |                               |
| MATERIAL                                | PA 12-GF30<br>PLASTIC BARREL               | 3RD ANGLE PROJECTION |         | <b>TURCK INC</b><br>3000 CAMPUS DRIVE<br>MINNEAPOLIS, MN 55441<br>PHONE: (612) 553-9224   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| FINISH                                  |  |                      |         |   |                     |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| DRWN                                    | RJP  | DATE                 | 4/27/92 | PART NO.  | Ni15-P30-AP6X-B2141 |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| CHKD                                    |  | DATE                 |         | SIZE  | B                   |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| TMI                                     |  | DATE                 |         | ID NO.  | 4697700             |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| DIMENSIONS ARE IN                       |  | INCHES               |         | SCALE   | NONE                |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
|   |  | mm                   |         | BPQD-D\4697700  | SHEET               |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
|   |  |                      |         |   | OF                  |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |
| REV                                     | DESCRIPTION                                | DRFT                 | DATE    | CHKD  | REVISIONS           |                   |                              |                      |      |   |                    |                                       |                  |                 |   |                |         |                         |                     |   |         |                         |         |                             |        |                 |            |                                |       |                            |              |                               |              |                       |              |                               |                  |                       |                                  |           |  |                |             |           |  |              |                       |               |                         |                     |        |               |                              |          |    |                     |                               |