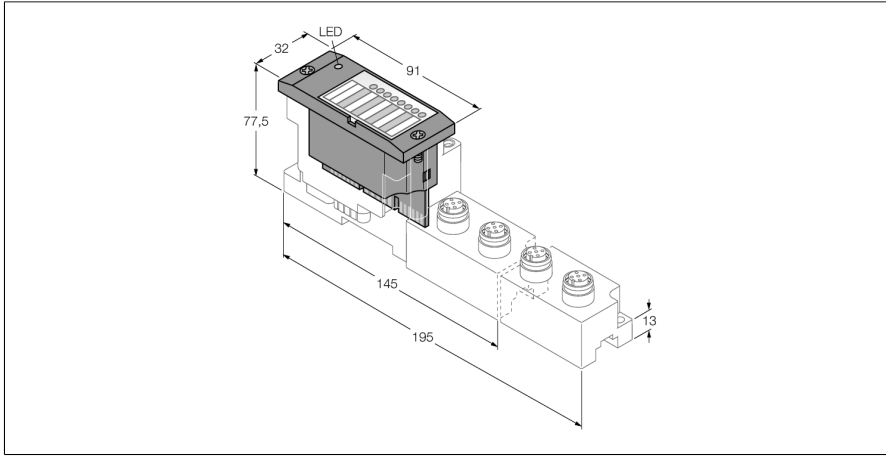


# BL67 electronic module

## Detection of Standard Counting Signals

### BL67-1CNT/ENC



- Kullanılan fieldbus ve bağlantı teknolojisinden bağımsız
- Koruma sınıfı IP67
- LEDs indicate status and diagnostic
- Electronics galvanically separated from the field level via optocouplers
- Detection of standard counting signals
- 5 VDC differential
- 5 ... 24 VDC single-ended
- 2 digital inputs, 24 VDC
- 2 digital outputs, 24 VDC, 0.5 A
- 2 more digital DIO channels (each channel is independently serviceable as input or output, 24 VDC, 0.5 A)

|  |   |
|--|---|
| Tip                                    | BL67-1CNT/ENC   |
| Tanit. no.                             | 6827224   |
| Kanal sayısı                           | 1   |
| Besleme gerilimi                       | 24 VDC  |
| Nominal voltage V <sub>n</sub>         | 24 VDC  |
| Alan beslemesinden gelen nominal akım  | ≤ 100 mA  |
| Modül veri yolundan gelen nominal akım | ≤ 50 mA   |
| Güç dağılımı, tipik                    | ≤ 1.2 W   |
| Elektrik yalıtımı                      | isolation of electronics and field level via optocouplers             |
| Giriş tipi                             | PNP   |
| Düşük seviye sinyal gerilimi           | < 5 V   |
| Yüksek seviye sinyal gerilimi          | 7...30 V  |
| Yüksek seviye sinyal akımı             | max. 5 mA   |
| Çıkış bağlantısı                       | M12, M23  |
| Çıkış tipi                             | PNP   |
| Çıkış voltajı                          | 24 VDC  |
| Kanal başına çıkış akımı               | 0.5 A   |
| Çıkış gecikmesi                        | 0.2 ms  |
| Yük tipi                               | resistive, inductive, lamp load                                       |
| Lamba yükü                             | < 10 W  |
| Anahtarlama frekansı, dirençli         | < 100 Hz  |
| Anahtarlama frekansı, endüktif         | < 2 Hz  |
| Anahtarlama frekansı, lamba yükü       | < 10 Hz   |
| Kısa devre koruması                    | evet  |
| Simultaneity factor                    | 1   |
| Ölçüm aralıkları                       |   |
| Frekans ölçümü                         | up to 250 kHz   |
| Hız ölçümü                             | factor parameterisable  |
| Periyot süresi ölçümü                  | çözünürlük 200 ns, maks. periyot süresi (2 <sup>32-1</sup> ) * 200 ns |
| Üst sayım sınırı                       | 0x80000000 up to 0xFFFFFFFF   |
| Alt sayım sınırı                       | 0x80000000 up to 0xFFFFFFFF   |

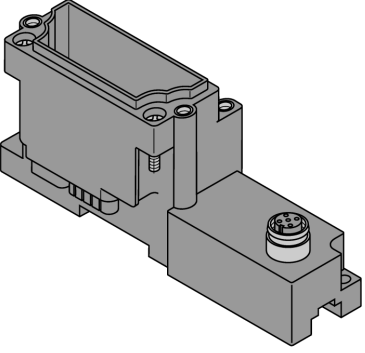
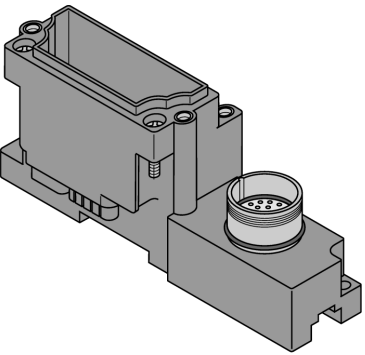
#### İşlevsel prensip

BL67 electronic modules are plugged on the purely passive base modules which in turn are connected to the field devices. The separation of connection level and electronics simplifies maintenance considerably. Flexibility is enhanced because the user can choose between base modules with different connection technologies.

The electronic modules are completely independent of the higher level fieldbus through the use of gateways.

|                                   |   |
|-----------------------------------|---|
| Giriş bayt sayısı                 | 12  |
| Çıkış bayt sayısı                 | 8   |
| Boyutlar (W x L x H)              | 32 x 91 x 59 mm   |
| Onaylar                           | CE, cULus   |
| Ortam sıcaklığı                   | -40...+70 °C  |
| Saklama sıcaklığı                 | -40...+85 °C  |
| Bağıl nem                         | %5...95 (dahili), seviye RH-2, yoğuşmasız (45°C'de depolandığında)  |
| Titreşim testi                    | EN 61131 uyarınca   |
| - up to 5 g (at 10 to 150 Hz)     | for mounting on DIN rail no drilling according to EN 60715, with end bracket                                  |
| - up to 20 g (at 10 up to 150 Hz) | for mounting on base plate or machinery Therefore every second module has to be mounted with two screws each. |
| Darbe testi                       | IEC 60068-2-27 uyarınca   |
| Düşme ve devrilme                 | acc. to IEC 68-2-31 and free fall to IEC 68-2-32  |
| Elektromanyetik uyumluluk         | EN 61131-2 uyarınca   |
| IP Derecesi                       | IP67  |
| Tightening torque fixing screw    | 0.9...1.2 Nm  |

## Compatible base modules

| Ölçekli çizim  | Type   | Pin configuration   |                 |                 |   |                |       |   |    |   |                 |               |   |    |   |       |               |   |    |   |               |               |   |   |   |                |           |   |   |   |                 |                 |   |   |   |                |               |   |    |   |                 |                 |   |    |   |       |           |   |    |   |                 |            |   |   |   |       |           |   |   |   |                 |          |
|--|--|---|-----------------|-----------------|---|----------------|-------|---|----|---|-----------------|---------------|---|----|---|-------|---------------|---|----|---|---------------|---------------|---|---|---|----------------|-----------|---|---|---|-----------------|-----------------|---|---|---|----------------|---------------|---|----|---|-----------------|-----------------|---|----|---|-------|-----------|---|----|---|-----------------|------------|---|---|---|-------|-----------|---|---|---|-----------------|----------|
|   | <p><b>BL67-B-1M12-8</b><br/>6827193<br/>1 x M12, 8-pole, female</p> <p><b>Comments</b><br/>Matching connection cable (for example):<br/>BS8181-0<br/>Ident no. 6901004</p>                 | <p><b>Pin atanması: RS422</b></p> <p>↺</p> <table border="0"> <tr> <td>8</td><td>2</td><td>3</td><td>1 = DI 3 / GND</td><td>5 = B</td> </tr> <tr> <td>1</td><td>6</td><td>4</td><td>2 = DO 3 / Venc</td><td>6 = <math>\bar{B}</math></td> </tr> <tr> <td>7</td><td>6</td><td>5</td><td>3 = A</td><td>7 = <math>\bar{Z}</math></td> </tr> <tr> <td></td><td></td><td></td><td>4 = <math>\bar{A}</math></td><td>8 = <math>\bar{Z}</math></td> </tr> </table> <p><b>Pin atanması: İt-çek</b></p> <p>↺</p> <table border="0"> <tr> <td>8</td><td>2</td><td>3</td><td>1 = DI 3 / GND</td><td>5 = B</td> </tr> <tr> <td>1</td><td>6</td><td>4</td><td>2 = DO 3 / Venc</td><td>6 = n.c. or GND</td> </tr> <tr> <td>7</td><td>6</td><td>5</td><td>3 = A</td><td>7 = <math>\bar{Z}</math></td> </tr> <tr> <td></td><td></td><td></td><td>4 = n.c. or GND</td><td>8 = n.c. or GND</td> </tr> </table>   | 8               | 2               | 3 | 1 = DI 3 / GND | 5 = B | 1 | 6  | 4 | 2 = DO 3 / Venc | 6 = $\bar{B}$ | 7 | 6  | 5 | 3 = A | 7 = $\bar{Z}$ |   |    |   | 4 = $\bar{A}$ | 8 = $\bar{Z}$ | 8 | 2 | 3 | 1 = DI 3 / GND | 5 = B     | 1 | 6 | 4 | 2 = DO 3 / Venc | 6 = n.c. or GND | 7 | 6 | 5 | 3 = A          | 7 = $\bar{Z}$ |   |    |   | 4 = n.c. or GND | 8 = n.c. or GND |   |    |   |       |           |   |    |   |                 |            |   |   |   |       |           |   |   |   |                 |          |
| 8  | 2  | 3   | 1 = DI 3 / GND  | 5 = B           |   |                |       |   |    |   |                 |               |   |    |   |       |               |   |    |   |               |               |   |   |   |                |           |   |   |   |                 |                 |   |   |   |                |               |   |    |   |                 |                 |   |    |   |       |           |   |    |   |                 |            |   |   |   |       |           |   |   |   |                 |          |
| 1  | 6  | 4   | 2 = DO 3 / Venc | 6 = $\bar{B}$   |   |                |       |   |    |   |                 |               |   |    |   |       |               |   |    |   |               |               |   |   |   |                |           |   |   |   |                 |                 |   |   |   |                |               |   |    |   |                 |                 |   |    |   |       |           |   |    |   |                 |            |   |   |   |       |           |   |   |   |                 |          |
| 7  | 6  | 5   | 3 = A           | 7 = $\bar{Z}$   |   |                |       |   |    |   |                 |               |   |    |   |       |               |   |    |   |               |               |   |   |   |                |           |   |   |   |                 |                 |   |   |   |                |               |   |    |   |                 |                 |   |    |   |       |           |   |    |   |                 |            |   |   |   |       |           |   |   |   |                 |          |
|  |  |   | 4 = $\bar{A}$   | 8 = $\bar{Z}$   |   |                |       |   |    |   |                 |               |   |    |   |       |               |   |    |   |               |               |   |   |   |                |           |   |   |   |                 |                 |   |   |   |                |               |   |    |   |                 |                 |   |    |   |       |           |   |    |   |                 |            |   |   |   |       |           |   |   |   |                 |          |
| 8  | 2  | 3   | 1 = DI 3 / GND  | 5 = B           |   |                |       |   |    |   |                 |               |   |    |   |       |               |   |    |   |               |               |   |   |   |                |           |   |   |   |                 |                 |   |   |   |                |               |   |    |   |                 |                 |   |    |   |       |           |   |    |   |                 |            |   |   |   |       |           |   |   |   |                 |          |
| 1  | 6  | 4   | 2 = DO 3 / Venc | 6 = n.c. or GND |   |                |       |   |    |   |                 |               |   |    |   |       |               |   |    |   |               |               |   |   |   |                |           |   |   |   |                 |                 |   |   |   |                |               |   |    |   |                 |                 |   |    |   |       |           |   |    |   |                 |            |   |   |   |       |           |   |   |   |                 |          |
| 7  | 6  | 5   | 3 = A           | 7 = $\bar{Z}$   |   |                |       |   |    |   |                 |               |   |    |   |       |               |   |    |   |               |               |   |   |   |                |           |   |   |   |                 |                 |   |   |   |                |               |   |    |   |                 |                 |   |    |   |       |           |   |    |   |                 |            |   |   |   |       |           |   |   |   |                 |          |
|  |  |   | 4 = n.c. or GND | 8 = n.c. or GND |   |                |       |   |    |   |                 |               |   |    |   |       |               |   |    |   |               |               |   |   |   |                |           |   |   |   |                 |                 |   |   |   |                |               |   |    |   |                 |                 |   |    |   |       |           |   |    |   |                 |            |   |   |   |       |           |   |   |   |                 |          |
|  | <p><b>BL67-B-1M23</b><br/>6827213<br/>1 x M23, 12-pole, female</p> <p><b>Comments</b><br/>Matching connection cable (for example):<br/>FW-M23ST12Q-G-LT-ME-XX-10<br/>Ident no. 6604070</p> | <p><b>Pin atanması: RS422</b></p> <p>↺</p> <table border="0"> <tr> <td>1</td><td>9</td><td>8</td><td>1 = DI 3 / GND</td><td>7 = Z</td> </tr> <tr> <td>2</td><td>10</td><td>7</td><td>2 = DO 3 / Venc</td><td>8 = <math>\bar{Z}</math></td> </tr> <tr> <td>3</td><td>11</td><td>6</td><td>3 = A</td><td>9 = DIO 0</td> </tr> <tr> <td>4</td><td>12</td><td>5</td><td>4 = <math>\bar{A}</math></td><td>10 = DIO 1</td> </tr> <tr> <td>5</td><td>1</td><td>4</td><td>5 = B</td><td>11 = DO 2</td> </tr> <tr> <td>6</td><td>2</td><td>3</td><td>6 = <math>\bar{B}</math></td><td>12 = GND</td> </tr> </table> <p><b>Pin atanması: İt-çek</b></p> <p>↺</p> <table border="0"> <tr> <td>1</td><td>9</td><td>8</td><td>1 = DI 3 / GND</td><td>7 = Z</td> </tr> <tr> <td>2</td><td>10</td><td>7</td><td>2 = DO 3 / Venc</td><td>8 = n.c. or GND</td> </tr> <tr> <td>3</td><td>11</td><td>6</td><td>3 = A</td><td>9 = DIO 0</td> </tr> <tr> <td>4</td><td>12</td><td>5</td><td>4 = n.c. or GND</td><td>10 = DIO 1</td> </tr> <tr> <td>5</td><td>1</td><td>4</td><td>5 = B</td><td>11 = DO 2</td> </tr> <tr> <td>6</td><td>2</td><td>3</td><td>6 = n.c. or GND</td><td>12 = GND</td> </tr> </table> | 1               | 9               | 8 | 1 = DI 3 / GND | 7 = Z | 2 | 10 | 7 | 2 = DO 3 / Venc | 8 = $\bar{Z}$ | 3 | 11 | 6 | 3 = A | 9 = DIO 0     | 4 | 12 | 5 | 4 = $\bar{A}$ | 10 = DIO 1    | 5 | 1 | 4 | 5 = B          | 11 = DO 2 | 6 | 2 | 3 | 6 = $\bar{B}$   | 12 = GND        | 1 | 9 | 8 | 1 = DI 3 / GND | 7 = Z         | 2 | 10 | 7 | 2 = DO 3 / Venc | 8 = n.c. or GND | 3 | 11 | 6 | 3 = A | 9 = DIO 0 | 4 | 12 | 5 | 4 = n.c. or GND | 10 = DIO 1 | 5 | 1 | 4 | 5 = B | 11 = DO 2 | 6 | 2 | 3 | 6 = n.c. or GND | 12 = GND |
| 1  | 9  | 8   | 1 = DI 3 / GND  | 7 = Z           |   |                |       |   |    |   |                 |               |   |    |   |       |               |   |    |   |               |               |   |   |   |                |           |   |   |   |                 |                 |   |   |   |                |               |   |    |   |                 |                 |   |    |   |       |           |   |    |   |                 |            |   |   |   |       |           |   |   |   |                 |          |
| 2  | 10   | 7   | 2 = DO 3 / Venc | 8 = $\bar{Z}$   |   |                |       |   |    |   |                 |               |   |    |   |       |               |   |    |   |               |               |   |   |   |                |           |   |   |   |                 |                 |   |   |   |                |               |   |    |   |                 |                 |   |    |   |       |           |   |    |   |                 |            |   |   |   |       |           |   |   |   |                 |          |
| 3  | 11   | 6   | 3 = A           | 9 = DIO 0       |   |                |       |   |    |   |                 |               |   |    |   |       |               |   |    |   |               |               |   |   |   |                |           |   |   |   |                 |                 |   |   |   |                |               |   |    |   |                 |                 |   |    |   |       |           |   |    |   |                 |            |   |   |   |       |           |   |   |   |                 |          |
| 4  | 12   | 5   | 4 = $\bar{A}$   | 10 = DIO 1      |   |                |       |   |    |   |                 |               |   |    |   |       |               |   |    |   |               |               |   |   |   |                |           |   |   |   |                 |                 |   |   |   |                |               |   |    |   |                 |                 |   |    |   |       |           |   |    |   |                 |            |   |   |   |       |           |   |   |   |                 |          |
| 5  | 1  | 4   | 5 = B           | 11 = DO 2       |   |                |       |   |    |   |                 |               |   |    |   |       |               |   |    |   |               |               |   |   |   |                |           |   |   |   |                 |                 |   |   |   |                |               |   |    |   |                 |                 |   |    |   |       |           |   |    |   |                 |            |   |   |   |       |           |   |   |   |                 |          |
| 6  | 2  | 3   | 6 = $\bar{B}$   | 12 = GND        |   |                |       |   |    |   |                 |               |   |    |   |       |               |   |    |   |               |               |   |   |   |                |           |   |   |   |                 |                 |   |   |   |                |               |   |    |   |                 |                 |   |    |   |       |           |   |    |   |                 |            |   |   |   |       |           |   |   |   |                 |          |
| 1  | 9  | 8   | 1 = DI 3 / GND  | 7 = Z           |   |                |       |   |    |   |                 |               |   |    |   |       |               |   |    |   |               |               |   |   |   |                |           |   |   |   |                 |                 |   |   |   |                |               |   |    |   |                 |                 |   |    |   |       |           |   |    |   |                 |            |   |   |   |       |           |   |   |   |                 |          |
| 2  | 10   | 7   | 2 = DO 3 / Venc | 8 = n.c. or GND |   |                |       |   |    |   |                 |               |   |    |   |       |               |   |    |   |               |               |   |   |   |                |           |   |   |   |                 |                 |   |   |   |                |               |   |    |   |                 |                 |   |    |   |       |           |   |    |   |                 |            |   |   |   |       |           |   |   |   |                 |          |
| 3  | 11   | 6   | 3 = A           | 9 = DIO 0       |   |                |       |   |    |   |                 |               |   |    |   |       |               |   |    |   |               |               |   |   |   |                |           |   |   |   |                 |                 |   |   |   |                |               |   |    |   |                 |                 |   |    |   |       |           |   |    |   |                 |            |   |   |   |       |           |   |   |   |                 |          |
| 4  | 12   | 5   | 4 = n.c. or GND | 10 = DIO 1      |   |                |       |   |    |   |                 |               |   |    |   |       |               |   |    |   |               |               |   |   |   |                |           |   |   |   |                 |                 |   |   |   |                |               |   |    |   |                 |                 |   |    |   |       |           |   |    |   |                 |            |   |   |   |       |           |   |   |   |                 |          |
| 5  | 1  | 4   | 5 = B           | 11 = DO 2       |   |                |       |   |    |   |                 |               |   |    |   |       |               |   |    |   |               |               |   |   |   |                |           |   |   |   |                 |                 |   |   |   |                |               |   |    |   |                 |                 |   |    |   |       |           |   |    |   |                 |            |   |   |   |       |           |   |   |   |                 |          |
| 6  | 2  | 3   | 6 = n.c. or GND | 12 = GND        |   |                |       |   |    |   |                 |               |   |    |   |       |               |   |    |   |               |               |   |   |   |                |           |   |   |   |                 |                 |   |   |   |                |               |   |    |   |                 |                 |   |    |   |       |           |   |    |   |                 |            |   |   |   |       |           |   |   |   |                 |          |

**LED display**

| LED           | Color     | Status            | Meaning   |
|---------------|-----------|-------------------|---|
| D             |           | OFF               | No error message or diagnostics active.   |
|               | RED       | ON                | Failure of module bus communication. Check if more than 2 adjacent electronic modules are pulled. Relevant modules are located between gateway and this module. |
|               | RED       | FLASHING (0.5 Hz) | Upcoming module diagnostics   |
| A/Z           |           | OFF               | Inputs A and Z inactive   |
|               | GREEN     | ON                | Input A active  |
|               | RED       | ON                | Input Z active  |
|               | RED/GREEN | ON                | Inputs A and Z active   |
| B             |           | OFF               | Input B inactive  |
|               | GREEN     | ON                | Input B active resp. direction input indicates "count down"   |
| DIO 0 / DIO 1 |           | OFF               | Channel status x = 0 (OFF)  |
|               | GREEN     | ON                | Channel status x = 1 (ON)   |
|               | RED       | ON                | Overload at output x  |
| DO 2 / DO 3   |           | OFF               | Output status x = 0 (OFF)   |
|               | GREEN     | ON                | Output status x = 1 (ON)  |
|               | RED       | ON                | Overload at output x  |
| DI 2 / DI 3   |           | OFF               | Input status x = 0 (OFF)  |
|               | GREEN     | ON                | Input status x = 1 (ON)   |

### Data mapping

| DATA          | BYTE | Bit 7               | Bit 6          | Bit 5 | Bit 4 | Bit 3 | Bit 2  | Bit 1        | Bit 0              |  |
|---------------|------|---------------------|----------------|-------|-------|-------|--------|--------------|--------------------|--|
| <b>Input</b>  | n    | X                   | A              | B     | Z     | DI 3  | DI 2   | DI 1         | DI 0               |  |
|               | n+1  | ERR_<br>PARA        | SYNC_<br>AKN   | X     | X     | X     | X      | X            | count<br>direction |  |
|               | n+2  | REG_WR_<br>ACCEPT   | REG_WR_<br>AKN | X     | X     | X     | STS_ZC | STS_<br>OFLW | STS_<br>UFLW       |  |
|               | n+3  | REG_RD_<br>ABORT    | REG_RD_ADR     |       |       |       |        |              |                    |  |
|               | n+4  | REG_RD_DATA, Byte 0 |                |       |       |       |        |              |                    |  |
|               | n+4  | REG_RD_DATA, Byte 1 |                |       |       |       |        |              |                    |  |
|               | n+6  | REG_RD_DATA, Byte 2 |                |       |       |       |        |              |                    |  |
|               | n+7  | REG_RD_DATA, Byte 3 |                |       |       |       |        |              |                    |  |
|               | n+8  | AUX_RD_DATA, Byte 0 |                |       |       |       |        |              |                    |  |
|               | n+9  | AUX_RD_DATA, Byte 1 |                |       |       |       |        |              |                    |  |
|               | n+10 | AUX_RD_DATA, Byte 2 |                |       |       |       |        |              |                    |  |
|               | n+11 | AUX_RD_DATA, Byte 3 |                |       |       |       |        |              |                    |  |
| <b>Output</b> | m    | DO 3                | DO 2           | DO 1  | DO 0  | X     | X      | X            | GATE               |  |
|               | m+1  | X                   | SYNC_<br>REQ   | X     | X     | X     | X      | X            | RES_STS            |  |
|               | m+2  | REG_WR              | REG_WR_ADR     |       |       |       |        |              |                    |  |
|               | m+3  | REG_RD_ADR          |                |       |       |       |        |              |                    |  |
|               | m+4  | REG_WR_DATA, Byte 0 |                |       |       |       |        |              |                    |  |
|               | m+4  | REG_WR_DATA, Byte 1 |                |       |       |       |        |              |                    |  |
|               | m+6  | REG_WR_DATA, Byte 2 |                |       |       |       |        |              |                    |  |
|               | m+7  | REG_WR_DATA, Byte 3 |                |       |       |       |        |              |                    |  |

n = Offset of input data; depending on extension of station and the corresponding fieldbus.

m = Offset of output data; depending on extension of station and the corresponding fieldbus.

With PROFIBUS, PROFINET and CANopen, the I/O data of this module is localized within the process data of the whole station via the hardware configuration tool of the fieldbus master.

With DeviceNet™, EtherNet/IP™ and Modbus TCP a detailed mapping table can be created with the TURCK configuration tool I/O-ASSISTANT.