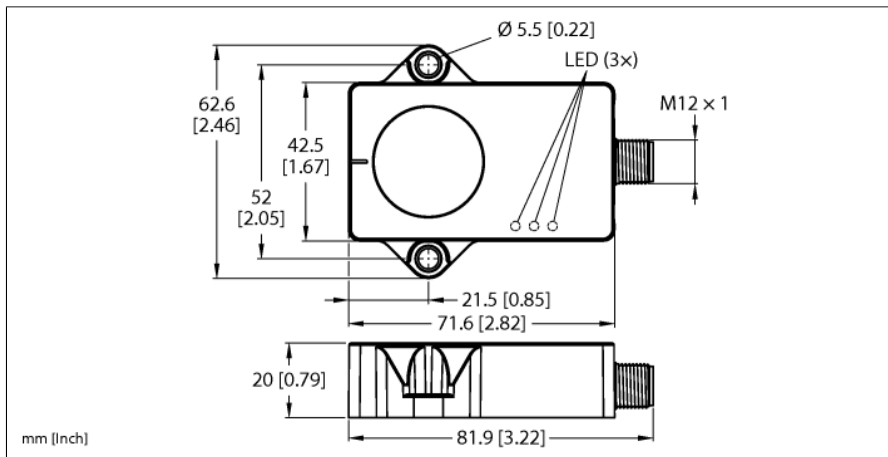


# Dynamic Inclinometer With Analog Outputs B2NF85H-QR20-2LUX3-H1151



|      |                          |
|------|--------------------------|
| Type | B2NF85H-QR20-2LUX3-H1151 |
| ID   | 100031524                |

|                     |                                              |
|---------------------|----------------------------------------------|
| Measuring principle | Combination of gyroscopes and accelerometers |
|---------------------|----------------------------------------------|

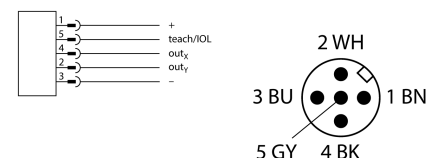
|                          |                        |
|--------------------------|------------------------|
| General data             |                        |
| Resolution               | 16 bit                 |
| Measuring range          | -85...85°              |
| Number of measuring axes | 2                      |
| Repeat accuracy          | ≤ 0.06 % of full scale |
| Linearity deviation      | ≤ 0.25 %               |
| Temperature drift        | ≤ ± 0.012 %/K          |

|                                        |                      |
|----------------------------------------|----------------------|
| Electrical data                        |                      |
| Operating voltage $U_s$                | 15...30 VDC          |
| Ripple $U_{rs}$                        | ≤ 10 % $U_{Bmax}$    |
| Isolation test voltage                 | 0.5 kV               |
| Short-circuit protection               | yes                  |
| Wire break/reverse polarity protection | yes/yes              |
| Output function                        | 5-pin, Analog output |
| Voltage output                         | 0...10 V             |
| Load resistance voltage output         | ≥ 4.7 kΩ             |
| Load resistance current output         | ≤ 0.4 kΩ             |
| Current consumption                    | < 80 mA              |

|                       |                     |
|-----------------------|---------------------|
| Mechanical data       |                     |
| Design                | Rectangular, QR20   |
| Dimensions            | 71.6 x 62.6 x 20 mm |
| Housing material      | Plastic, Ultem      |
| Electrical connection | Connector, M12 × 1  |

- Rectangular, plastic, Ultem
- Status displayed via LED
- Angle detection along two axes with ±85 ° measuring range
- High protection class IP68/IP69K
- Protected against salt spray and rapid temperature change
- 15...30 VDC
- M12 × 1 male connector, 5-pin
- Analog output 0...10 V
- The center point of the measuring range can be adjusted using teach adaptor TX1-Q20L60
- Individual parameterization possible with USB-2-IOL-0002

## Wiring Diagram



## Functional principle

The dynamic inclinometers use an acceleration measuring cell and a gyroscope sensor to determine angles. Influences caused by vibrations or interfering acceleration are minimized by applying an intelligent fusion algorithm to the acceleration data and the rotation rate values. This enables the sensor to output a robust signal with impressive precision and speed, even in moving, dynamic applications.

The robust sensors are positioned with the cast side on a flat surface so that the casting compound is covered. The sensor is then secured with two screws.

|                                     |                                           |
|-------------------------------------|-------------------------------------------|
| Environmental conditions            |                                           |
| Ambient temperature                 | -40...+85 °C                              |
| Temperature changes (EN60068-2-14)  | -40... +85 °C; 20 cycles                  |
| Vibration resistance (EN 60068-2-6) | 20 g; 5 h/axis; 3 axes                    |
| Shock resistance (EN 60068-2-27)    | 200 g; 4 ms ½ sine                        |
| Protection class                    | IP68                                      |
|                                     | IP69K                                     |
| MTTF                                | 297 years acc. to SN 29500 (Ed. 99) 40 °C |
|                                     |                                           |
| Power-on indication                 | LED, Green                                |
| Measuring range display             | LED, yellow                               |
| UL certificate                      | E351232                                   |

## Teach instructions

### Activation of the teach process

|                                                                                                                                                           | Bridge between pin 5 and pin 1                                                                                                                         | LED green                              | LED yellow |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|------------|
| Activate teaching                                                                                                                                         | Before switching on the supply voltage, set the teach bridge, then switch on the voltage, then remove the bridge immediately after starting the sensor | Teach process active:<br>700 ms/100 ms |            |
| The teach process is automatically deactivated after 30 s. The yellow CENTER LED and the green LED flash alternately and then return to normal operation. |                                                                                                                                                        |                                        |            |

### Teach sequence for center point

|                    | Bridge between pin 5 and pin 1 | LED green                     | LED yellow                    |
|--------------------|--------------------------------|-------------------------------|-------------------------------|
| Activate sequence* | Set bridge for 2...8 s         | After 2 s of flashing at 1 Hz |                               |
| Set center point** | Bridge for 2...8 s             |                               | After 2 s of flashing at 1 Hz |

### Factory setting

|                                         | Bridge between pin 5 and pin 1 | LED green                     | LED yellow                    |
|-----------------------------------------|--------------------------------|-------------------------------|-------------------------------|
| Activate sequence for factory settings* | Bridge for 8...14 s            | After 2 s of flashing at 2 Hz |                               |
| Reset to factory settings**             | Bridge for 2...8 s             |                               | After 2 s of flashing at 1 Hz |

\*Teach sequence remains active for 30 s, then returns to normal operation

\*\*After the center point/measuring range/factory settings have been established, the teach sequence ends and automatically returns to the activated teach process

## Accessories

| Type code      | Ident no. |                                                                                        | Dimension drawing |
|----------------|-----------|----------------------------------------------------------------------------------------|-------------------|
| AP-Q20L60-QR20 | 100029224 | Adapter plate for mounting the QR20 housing with mounting holes for the Q20L60 housing |                   |

## Function accessories

| Type code      | Ident no. |                                                                                                 | Dimension drawing |
|----------------|-----------|-------------------------------------------------------------------------------------------------|-------------------|
| USB-2-IOL-0002 | 6825482   | IO-Link Master with integrated USB port                                                         |                   |
| TX1-Q20L60     | 6967114   | Teach adapter for inductive encoders, linear position, angle, ultrasonic and capacitive sensors |                   |