

**Ultrasonic Sensors**



**U-Gage™  
Q45U Series  
With Analogue Output**

**Supply voltage**  $U_b$  15...24 VDC  
 Ripple  $V_{pp}$   $\leq 10\%$   
 No load current  $\leq 100\text{ mA}$   
**Protection** short-circuit  
 reverse polarity  
**Output** adjustable with DIP-switch  
 Voltage output 0...10 VDC  
 Load current  $< 10\text{ mA}$   
 Supply output 4...20 mA  
 Load impedance  $\leq 500\ \Omega$

**Sensing window, adjustable** with Teach-in-function  
 (see table on next page)  
 100 x 100 mm

Nominal Target  
 Repeat accuracy R  
 Type Q45U-LIU64-AC  $\pm 0.1\%$  (min.  $\pm 0.25\text{ mm}$ )  
 Type Q45U-LIU64-BC  $\pm 0.1\%$  (min.  $\pm 0.5\text{ mm}$ )  
 Temperature drift  $\leq 1\%/^{\circ}\text{C}$  (0...50 °C)  
 $\leq 2.5\%/^{\circ}\text{C}$  (-25...+70 °C)

Response time  
 Type Q45U-LIU64-AC 40...1280 ms (adjustable)  
 Type Q45U-LIU64-BC 80...2560 ms (adjustable)

**Material housing** PBT  
 Material transparent cover Acrylic  
 Protection class IP67  
 Temperature range -25...+70 °C  
 Cable 2 m, PVC, 5 x 0.34 mm<sup>2</sup>  
 Connector Eurocon

**Indicator LED's**  
 Yellow target within sensing window  
 Green power-on  
 Green flashing output overload  
 Red flashing target within sensing window (flashing frequency in proportion to the received signal strength)

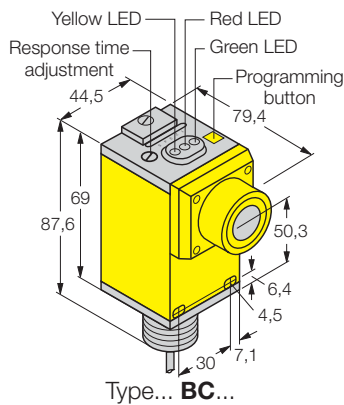
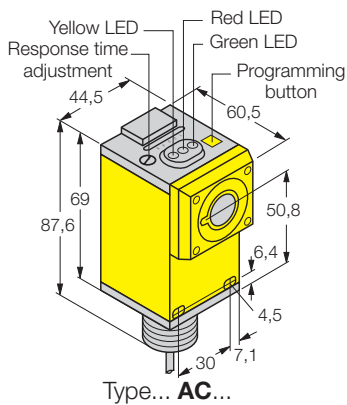
**Accessories**

**Brackets**  
 SMB30A 34 703 00 angle bracket  
 SMB30S 34 706 00 swivel mount bracket  
 SMB30C 34 701 00 split clamp bracket

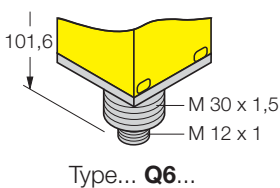
**Connectors**  
 RK4.5T-2 66 338 03 straight type  
 WK4.5T-2 66 600 02 right-angled type  
 WAK4.5-2/P00 80 085 76 straight type  
 WWAK4.5-2/P00 80 085 83 right-angled type

**Dimensions [mm]**

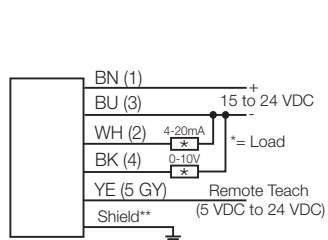
● **With Cable**



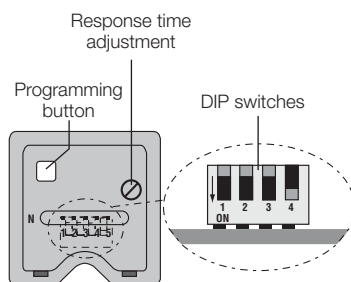
● **With Connector**



**Wiring**



\*\* Shield wire should be connected to earth ground or DC common



## Ultrasonic Sensors

# U-Gage™ Q45U Series

## With Analogue Output

Type	Operating range	Response time per cycle	Connection	Ident number
<b>Q45ULIU64ACR</b>	10...140 cm	40-1280 ms	cable	30 475 51
<b>Q45ULIU64ACRQ6</b>	10...140 cm	40-1280 ms	connector	30 475 54
<b>Q45ULIU64BCR</b>	25...300 cm	80-2560 ms	cable	30 475 55
<b>Q45ULIU64BCRQ6</b>	25...300 cm	80-2560 ms	connector	30 475 58

**Adjustment of the switching limits** (open cover on top of the sensor housing)

Push button Control	Status indication
<b>Step 1</b> Hold button for approx. 2 s until green LED goes OFF	green LED OFF yellow LED ON - indicates TEACH mode red LED flashes in direct proportion to received signal strength when target is detected
<b>Step 2</b> Set first limit (near or far) Place target at first limit and press button (less than 2 s)	green LED OFF yellow LED flashes at 2 Hz - indicates the TEACH mode for second limit red LED ON briefly; then flashes in direct proportion to the received signal strength
<b>Step 3</b> Set second limit (near or far) Place target at second limit and press button (less than 2 s)	green LED first OFF; then comes ON to indicate RUN mode yellow LED comes ON briefly then LED is ON or OFF according to output status (RUN mode) red LED ON briefly; then flashes in direct proportion to the received signal strength (RUN mode)

### Programming of analog output with DIP-switches

(DIP-switch beneath cover on top of the sensor housing)

Switch	Function	Adjustment
1	Output curve	ON = increase, positive curve OFF* = decrease, negative curve
2	Output mode	ON** = current, output enabled OFF* = voltage, output enabled
3	Echo Loss	ON = min.-max. mode OFF* = hold mode
4	Min.-max. mode	ON* = go to max. value OFF = go to min. value

\*factory settings

#### \*\* Installation note

If current mode is selected by switching DIP switch 2 to ON, there must be a connecting wire or load between the sensor current output (pin 2) and ground (pin 3).

### Programming of the response time

(potentiometer beneath cover on top of the sensor housing)

Position	Response time	
	(cycles)	(ms)
1	2	80
2	4	160
3	8	320
4	16	640
5	32	1280
6	64	2560

#### Min.-max. mode

When the echo is lost (e.g. due to vibrations of shaft runout) it is possible to choose between several reaction modes of the sensor. In the min.-max. mode, the output jumps to the minimum or maximum value depending on the position of DIP switch 4. In the Hold mode, the last output value is maintained as long as no new measured value has been recorded.

Subject to changes without notice • Edition rev 03.03 • P/N ED004



**IMPORTANT SAFETY WARNING!** These sensors do NOT include the self-checking redundant circuitry necessary to allow their use in personnel safety applications. A sensor failure or malfunction can result in either an energised or de-energised output condition. These products should not be used as sensing devices for personnel safety.