



L-GAGE™ Q50 Series with Complementary Discrete Outputs

LED-Based Linear Displacement Sensor with Complementary Discrete Outputs and TEACH-Mode Programming



L-GAGE Q50 Complementary Discrete Output Sensor Features

- Cost-effective LED-based complementary-discrete sensor
- Fast, easy-to-use TEACH-Mode programming; no potentiometer adjustments
- Models available with either 4 or 48 millisecond response speed
- Models available with either visible red or infrared beam
- Teach a sensing window (2 switch points) or teach single switch point (adjustable field mode)
- Two sensing ranges, depending on model: 100 to 300 mm (visible red beam models), and 100 to 400 mm (infrared beam models)
- Good color sensitivity
- Remote TEACH input for security and convenience
- Two bicolor Status LEDs
- Choose 2 meter or 9 meter unterminated cable, or swivel 5-pin Euro-style QD connector
- Rugged construction withstands demanding sensing environments; rated IEC IP67, NEMA 6

L-GAGE Q50 Complementary Discrete Output Sensor Models

Model Number	Sensing Range	Cable*	Supply Voltage	Beam	Output	Response Time			
Q50BVN	100 to 300 mm (3.9" to 11.8")	5-wire, 2 m (6.5') cable	12 to 30V dc	Visible Red LED	Complementary NPN	48 ms			
Q50BVNQ		5-pin Euro-style QD				4 ms			
Q50BVNY		5-wire, 2 m (6.5') cable				Complementary PNP	48 ms		
Q50BVNYQ		5-pin Euro-style QD					4 ms		
Q50BVP		5-wire, 2 m (6.5') cable			Infrared LED		48 ms		
Q50BVPQ		5-pin Euro-style QD					4 ms		
Q50BVPY		5-wire, 2 m (6.5') cable				Complementary NPN	48 ms		
Q50BVPYQ		5-pin Euro-style QD					4 ms		
Q50BN	100 to 400 mm (3.9" to 15.7")	5-wire, 2 m (6.5') cable		12 to 30V dc	Infrared LED		Complementary NPN	48 ms	
Q50BNQ		5-pin Euro-style QD						4 ms	
Q50BNY		5-wire, 2 m (6.5') cable						Complementary PNP	48 ms
Q50BNYQ		5-pin Euro-style QD							4 ms
Q50BP		5-wire, 2 m (6.5') cable					Complementary PNP		48 ms
Q50BPQ		5-pin Euro-style QD							4 ms
Q50BPY		5-wire, 2 m (6.5') cable				Complementary PNP		48 ms	
Q50BPYQ		5-pin Euro-style QD						4 ms	

* 9 meter cables are available by adding suffix "W/30" to the model number of any cabled sensor (e.g., **Q50BVN W/30**). A model with a QD connector requires a mating cable; see page 8.

L-GAGE Q50 – Complementary Discrete Output Sensor

L-GAGE Q50 Complementary Discrete Output Sensor Specifications

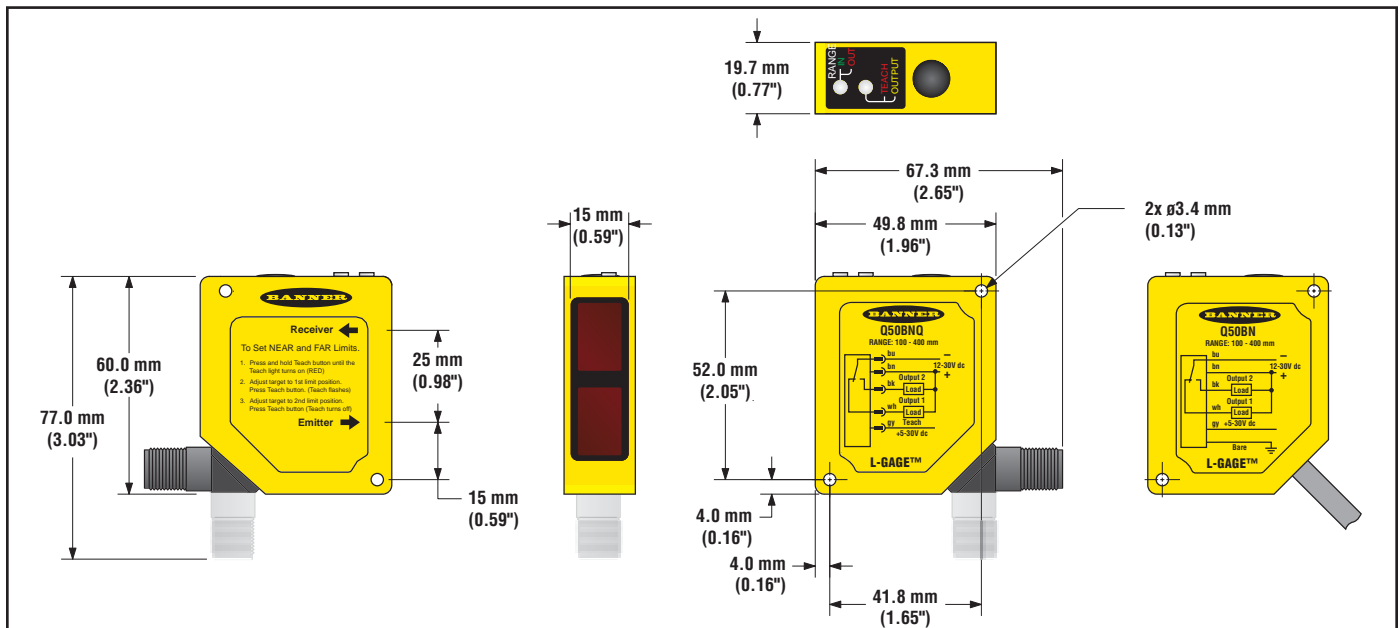
Sensing Range	Q50BV: 100 to 300 mm (3.9" to 11.8")	Q50B: 100 to 400 mm (3.9" to 15.7")						
Supply Voltage	12 to 30V dc (10% maximum ripple); 70 mA max. (exclusive of load)							
Supply Protection Circuitry	Protected against reverse polarity and transient overvoltages							
Delay at Power-up	2 seconds							
Sensing Beam	Wave length Q50BV: 685 nm (typical) Q50B: 880 nm (typical) Beam Size Q50BV: 20 mm dia. (max.) Q50B: 20 mm dia. (max.)							
Output Rating	Complementary Discrete Output 150 mA maximum, per output OFF-state leakage current: Less than 10 micro-amps ON-state saturation voltage: Less than 1V @ 10 mA and less than 1.5V @ 100 mA							
Output Configuration	SPDT (complementary) solid-state dc switch. Choose NPN (current sinking) or PNP (current sourcing) outputs.							
Output Protection	Protected against false pulse on power-up and continuous overload or short circuit of outputs							
Output Response Time	2-second delay on power-up Fast: 4 ms ON, 4 ms OFF Slow: 48 ms ON, 48 ms OFF							
Output Hysteresis	See Figure 3							
Sensing Repeatability	Slow Response (Q50B): 0.5% of sensing distance Fast Response (Q50B...Y): 1.0% of sensing distance							
Color Sensitivity (typical)	See Figure 4							
Remote Teach Input Impedance	15 kΩ							
Remote Teach Input	To Teach: Connect gray wire to +5 to 30V dc To Disable: Connect gray wire to 0 to +2V dc (or open connection)							
Adjustments	Sensing Window Limits: TEACH-mode programming of near and far window limits may be set using the Teach push button or remotely via the gray Teach wire.							
Indicators	<p>Range LED Indicator (green/red)</p> <p>Green — Target is within sensing range Red — Target is outside sensing range Flashing Green – Outputs are overloaded OFF — Sensor Power OFF</p> <p>Teach/Output LED Indicator (yellow/red)</p> <p>Yellow (window limits) — Target is within taught limits Yellow (fixed field) — Target is closer than cutoff limit OFF — Target is outside taught window limits Red — Sensor is in TEACH mode</p>							
Minimum Taught Window (millimeters)	Model Number	Distance						
		100 mm	150 mm	200 mm	250 mm	300 mm	350 mm	400 mm
	Q50BV..	1	2.0	3.5	5.0	7	–	–
	Q50BV..Y	2	4	7	10	14	–	–
	Q50B..	1	2.0	3.5	5.0	7	10	15
	Q50B..Y	2	4	7	10	14	20	30
Ambient Light Immunity	<10,000 Lux							

L-GAGE Q50 – Complementary Discrete Output Sensor

L-GAGE Q50 Complementary Discrete Output Sensor Specifications (continued)

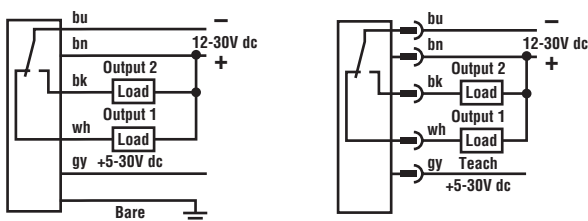
Construction	Housing: Molded ABS/Polycarbonate Window Lens: Acrylic
Environmental Rating	IEC IP67, NEMA 6
Connections	2 m or 9 m 5-conductor PVC-covered attached cable or 5-pin Euro-style quick disconnect
Operating Conditions	Temperature: -10° to +55°C (+14° to +131°F) Max. Rel. Humidity: 90% at +50°C (non-condensing)
Vibration and Mechanical Shock	All models meet Mil. Std. 202F requirements. Method 201A (Vibration: 10 to 60Hz max. double amplitude 0.06", maximum acceleration 10G). Also meets IEC 947-5-2 requirements: 30G, 11 ms duration, half sine wave.
Application Notes	Allow 15-minute warm-up for maximum performance.
Hardware	M3 hardware is included.

L-GAGE Q50 Dimensions



L-GAGE Q50 Hookups

NPN Hookups
Cabled Models Quick-Disconnect Models



PNP Hookups
Cabled Models Quick-Disconnect Models

