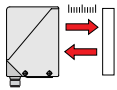


WTA 24

Distance Sensors



varies by model

sensing range



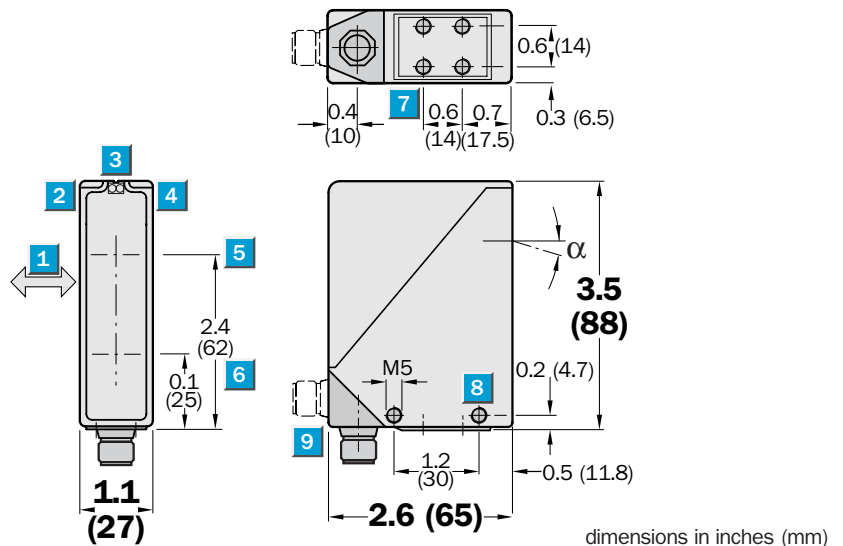
Highlights

- Rugged die cast metal housing
- Analog output
- High resolution
- Two switching outputs set using simple Teach-in
- Signal strength indicator
- Insensitive to ambient light
- Cable connections swivel 90° for easy installation
- Optional dust shield, snow shield or cooling plates available

WTA 24



Dimensional Drawing



Adjustment Instructions

Programming the switching outputs:

1. Move "Q₁/Q₂" switch to the switching output to be programmed. Move "Q/Q̄" switch to the desired switching mode.
2. Place object at the required switching distance.
3. Press "Teach-in" key. "OK" indicator illuminates when the switching limit has been saved to the memory.
4. Repeat steps 1/2/3 for the second switching output.
5. The device is ready for operation.

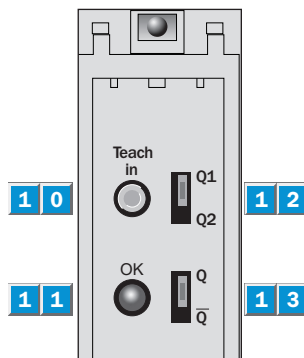
Note:

* Analog not scalable.

* Flashing front LEDs - insufficient or target out of range.

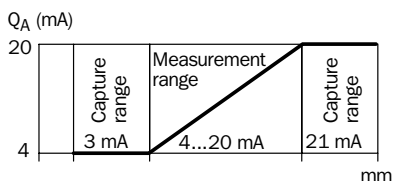
Adjustments

All types



- 1 Standard direction of object being scanned
- 2 Output Q₂ function indicator
- 3 Alignment sight
- 4 Output Q₁ function indicator
- 5 Center of optical axis, transmitter
- 6 Center of optical axis, receiver
- 7 M5 threaded mounting hole, 6 mm deep
- 8 M5 threaded mounting hole, through hole
- 9 Rotatable plug
- 1 0 "Teach- in" programming switch
- 1 1 "Teach- in" function indicator
- 1 2 "Q₁/Q₂" program switch
- 1 3 "Q/Q̄" program switch

Measurement Range



Order Information

Type	Part no.
WTA 24-P5201	1 011 504
WTA 24-P5401	1 011 505
WTA 24-P5501	1 011 515
WTA 24-P5201 S04	1 015 804
WTA 24-P5201 S01	1 013 228
WTA 24-P5401 S02	1 013 231
WTA 24-P5201 S03	1 013 235

Accessories

Accessories	page
Cables and connectors	909
Mounting brackets	923, 935
Cooling plates	958
Weather/dust shield	955

Web: <https://www.bolenscontrol.com/> - Phone: (800) 658-5241 - Email: sales@bolenscontrol.com

Technical Data		WTA 24-	P5201	P5401	P5501	P5201 S 04	P5201 S 01	P5401 S 02	P5201 S 03		
Light source¹⁾, light type	LED, infrared light										
Supply voltage V_S	12...30 V DC ²⁾										
Ripple	< 5 V _{SS} ³⁾										
Current consumption	< 100 mA ⁴⁾										
Switching outputs											
Q_1, Q_2	PNP, switchable										
Output voltage	HIGH = $V_S - < 2$ V/LOW = < 2 V										
Output current I_A max.	100 mA										
Response time ⁵⁾	5 ms										
Max. switching frequency ⁶⁾	100 Hz										
Response time ⁵⁾	50 ms										
Max. switching frequency ⁶⁾	10 Hz										
Response time ⁵⁾	100 ms										
Max. switching frequency ⁶⁾	5 Hz										
Analog output^{7) 8)}	4...20 mA (fixed)										
Connection type	Plug, M12 5-pin										
VDE protection class⁹⁾	□										
Circuit protection¹⁰⁾	A, B, C										
Enclosure rating	IP 67/NEMA 6										
Ambient temperature T_A⁸⁾	Operation -14...131°F (-10...55°C)										
	Storage -13...167°F (-25...75°C)										
Shock load	To IEC 68										
Temperature drift	0.2%/K (relative to measured value)										

1) Average service life 100,000 h
at $T_A = 25^\circ\text{C}$

2) Limit values

3) May not exceed or fall short of
 V_S tolerances

4) Without load

5) Signal transit time with resistive load

6) Object 50:50

7) In capture range 3 or 21 mA

8) $R_L = 0 \dots 500 \Omega$

9) Reference voltage 50 V DC

10) A = V_S connections reverse-polarity
protected

B = Inputs Q_1 and Q_2 short-circuit
protected

C = Interference pulse suppression

Measurement Range, Reproducibility and Accuracy

WTA 24-	P5201	P5401	P5501	P5201 S 04	P5201 S 01	P5401 S 02	P5201 S 03
Measurement range	250...350 mm	600...1200 mm	1000...3000 mm	100...500 mm	250...600 mm	400...1000 mm	250...450 mm
Capture range	200...250 mm	400...600 mm	500...1000 mm	80...100 mm			
Light spot diameter ⁴⁾	4...8 mm	15...30 mm	20...50 mm	8...12 mm	4...20 mm	15...35 mm	4...15 mm
Angle of divergence	7°	2°	0.5°	7°	7°	7°	7°
Repeatability³⁾	White (90%) 1.0% Grey (18%) 1.0% Black (6%) 1.5%	White (90%) 1.5% Grey (18%) 2.5% Black (6%) ³⁾ 4.0%	White (90%) 4.0% Grey (18%) 10.0% Black (6%) ²⁾ 8.0%	White (90%) 1.0% Black (6%) 2.0%	White (90%) 1.5% Black (6%) 3.5%	White (90%) 1.5% Black (6%) 4.0%	White (90%) 3.0% Black (6%) 4.0%
Accuracy³⁾	White (90%) 1.5% Grey (18%) 2.0% Black (6%) 4.0%	White (90%) 3.0% Grey (18%) 5.0% Black (6%) ³⁾ 8.0%	White (90%) 5.5% Grey (18%) 13.0% Black (6%) ²⁾ 10.0%	White (90%) 6.5% Grey (18%) 10.5% Black (6%) 11.5%	White (90%) 2.5% Grey (18%) 5.0% Black (6%) 8.0%	White (90%) 3.0% Grey (18%) 5.0% Black (6%) 8.0%	White (90%) ±3.0% Black (6%) ±5.0%
Resolution³⁾	White (90%) 0.5% Grey (18%) 0.5% Black (6%) 1.0%	White (90%) 1.0% Grey (18%) 1.5% Black (6%) ³⁾ 2.0%	White (90%) 2.0% Grey (18%) 5.0% Black (6%) ²⁾ 4.0%	White (90%) 6.5% Grey (18%) 10.5% Black (6%) 11.5%	White (90%) 1.0% Black (6%) 2.0%	White (90%) 1.0% Black (6%) 2.0%	White (90%) 0.5% Black (6%) 1.0%

1) up to 1000 mm

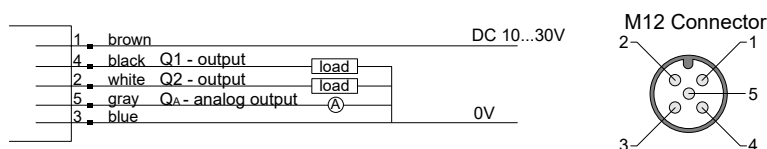
2) up to 2000 mm

3) relative to measured value, object 100 x 100 mm, ambient surroundings remain constant)

4) 90% core light

Note: See page xx for metric to English conversions.

Connection Diagram



wire colors refer to standard cable, not included