QS18E Clear Object Detection Product Manual

Original Instructions
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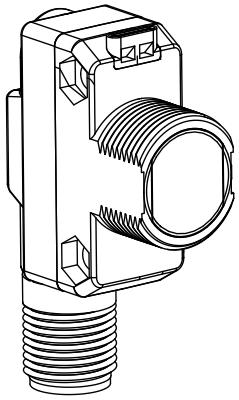
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Chapter 1 Features

Expert™ Coaxial Polarized Retroreflective Sensor for Clear Object Detection

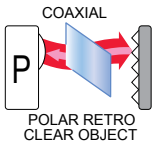


- Reliably detects clear, translucent, or opaque objects — including PET, glass containers, and transparent films
- Coaxial optics enable reliable detection of targets to the face of the sensor with no dead zone
- "Clear Tracking" automatic compensation algorithm provides long and reliable operation by compensating for dust build-up and ambient temperature changes
- Fast response speed with low jitter for high-speed bottling and packaging applications
- Bright, visible red light spot makes alignment easy
- 3 user-selectable thresholds optimize performance to the type of object being detected
- Easy configuration of sensor by remote teach input or tactile push button
- Convenient mounting options available for 18 mm barrel or side mount
- Bright indicator LEDs show operating status from 360°
- IP67 rated ABS housing
- Dedicated PNP or NPN output with matching remote input wire

WARNING:

- **Do not use this device for personnel protection**
- Using this device for personnel protection could result in serious injury or death.
- This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A device failure or malfunction can cause either an energized (on) or de-energized (off) output condition.

Models

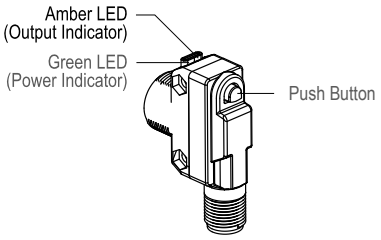
Models	Mode	Range	Output	Connector
QS18EN6XLPC		0 to 1.3 m (0 to 4.2 ft) on BRT-40X19A 0 to 2.0 m (0 to 6.5 ft) on BRT-51X51BM 0 to 3.0 m (0 to 9.8 ft) on BRT-92X92C	NPN	2 m (6.5 ft) cable
QS18EP6XLPC			PNP	

- The 9 m (30 ft) cable models (adding the suffix "W/30" to the cabled model number, for example QS18EN6XLPC W/30) are no longer available for order but are covered by the contents of this document.
- To order the 4-pin M12 male quick disconnect (QD) connector model, add the suffix "Q8" (for example QS18EN6LPCQ8)
- To order the 150 mm (6 inch) cable with a 4-pin M12 male QD model, add the suffix "Q5" (for example QS18EN6LPCQ5)
- To order the 4-pin M8 male QD model, add the suffix "Q7" (for example QS18EN6LPCQ7)
- To order the 150 mm (6 inch) cable with a 4-pin M8 male QD model, add the suffix "Q" (for example QS18EN6XLPCQ)

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Overview

The Banner QS18 sensor is a high-performance clear object detection sensor. The polarized coaxial optical design ensures reliable detection of transparent, translucent, and opaque targets at any distance between the sensor and the reflector. Low contrast sensing applications include PET bottles, glass containers, and shrink wrap. The sensor can also detect optical surfaces such as LCD panels with built-in polarizing films, solar panels, and semiconductor wafers.



Indicators (Two LEDs: One Green, One Amber)

Sensor Condition (Run Mode)	Green LED	Amber LED
Output OFF	ON	OFF
Output ON	ON	ON
Notification — Sensor needs to be reconfigured for reliable detection	Flashing at 5 Hz	ON/OFF
Notification — Push button has been locked out	Flashes 4 times and returns to solid on	ON/OFF

Installing and Mounting the Sensor for Low Contrast Applications

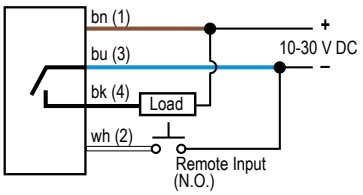
Reliable transparent object detection depends on the sensor always detecting the object as "dark state" and the reflector as the "light state". Using a recommended reflector, and proper orientation of the sensor to the reflector, is key to good clear object detection. Optimize the reliable detection of transparent and clear objects by applying the following steps when mounting the sensor and selecting a retroreflective target.

1. If a bracket is needed, mount the sensor onto the bracket.
2. Mount the sensor (or the sensor and the bracket) to the equipment at the desired location. Do not tighten at this time.
3. Align the sensor's light spot to the middle of the retroreflector.
4. Mount the retroreflector perpendicular to the sensor optical axis (± 5°).
5. Tighten the screws to secure the sensor (or the sensor and the bracket) to the aligned position.

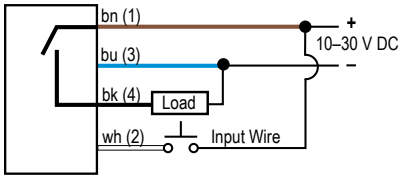
Mounting Considerations for Opaque Objects with Mirror-Like Surfaces—To minimize the potential for reflections from mirror-like objects affecting the sensor, it is best to side-mount the sensor.

Wiring Diagrams

NPN



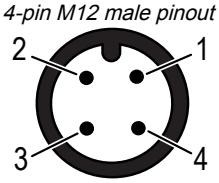
PNP



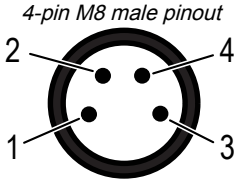
Key

1. Brown
2. White
3. Blue
4. Black

4-pin M12 male pinout



4-pin M8 male pinout



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Specifications

Supply Voltage
10 V to 30 V DC (10% maximum ripple)

Supply Current (Exclusive of Load Current)
< 25 mA at 15 V
< 40 mA at 24 V

Repeatability
100 µs

Supply Protection Circuitry
Protected against reverse polarity and transient voltages

Output Protection Circuitry
Protected against false pulse on power-up and continuous overload or short-circuit of output

Output Configuration
Current sourcing (PNP) or current sinking (NPN), depending on model; Light- or dark-operate selectable; Selectable 30 ms output OFF-delay
Rating: 100 mA max
Off-state leakage current: < 50 µA at 30 V
ON-state saturation voltage: < 1.5 V at 10 mA; < 3 V 100 mA

Output Response Time
Note: Momentary delay on power-up; output does not conduct during this time
400 µs ON/OFF

Construction
ABS housing, PMMA window

Emitter LED
Visible red, 625 nm

Indicators
Two LEDs (1 green, 1 amber)
Green solid: Indicates power applied and sensor ready
Green flashing: Indicates sensor operating in marginal state, in need of reconfiguration
Amber solid: Indicates output conducting

Connections
PVC-jacketed 4-conductor 2 m (6.5 ft) or 9 m (30 ft) unterminated cable, or 4-pin M12 or 4-pin M8 quick-disconnect (QD), either integral or 150 mm (6 in) cable, are available. Quick-disconnect cordsets are ordered separately.

Mounting Torque
Nose mount: 18 mm mounting nut, 20 lbf·in (2.3 N·m)
Side mount: Two M3 screws, 5 lbf·in (0.6 N·m)

Operating Conditions
Temperature: –40 °C to +70 °C (–40 °F to +158 °F)
Relative Humidity: 90% at +50 ºC (non-condensing)

Environmental
IEC IP67

Application Notes
If the push button does not appear to be responsive, perform the push button enable procedure

Factory Default Settings

Setting	Factory Default
Sensing Mode	Dark Set
Output Logic	Dark Operate
Offset Percent	16%
Push Button	Unlocked
Auto Compensation	Disabled
OFF Delay	Disabled

Certifications

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Park Lane, Culliganlaan 2F bus 3
1831 Diegem, BELGIUM

Turck Banner LTD Blenheim House
Blenheim Court
Wickford, Essex SS11 8YT
GREAT BRITAIN

Required Overcurrent Protection

WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

Overcurrent protection is required to be provided by end product application per the supplied table.
Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.
Supply wiring leads < 24 AWG shall not be spliced.
For additional product support, go to www.bannerengineering.com.

Supply Wiring (AWG)	Required Overcurrent Protection (A)	Supply Wiring (AWG)	Required Overcurrent Protection (A)
20	5.0	26	1.0
22	3.0	28	0.8
24	2.0	30	0.5

FCC Part 15 Class A for Unintentional Radiators

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

(Part 15.21) Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

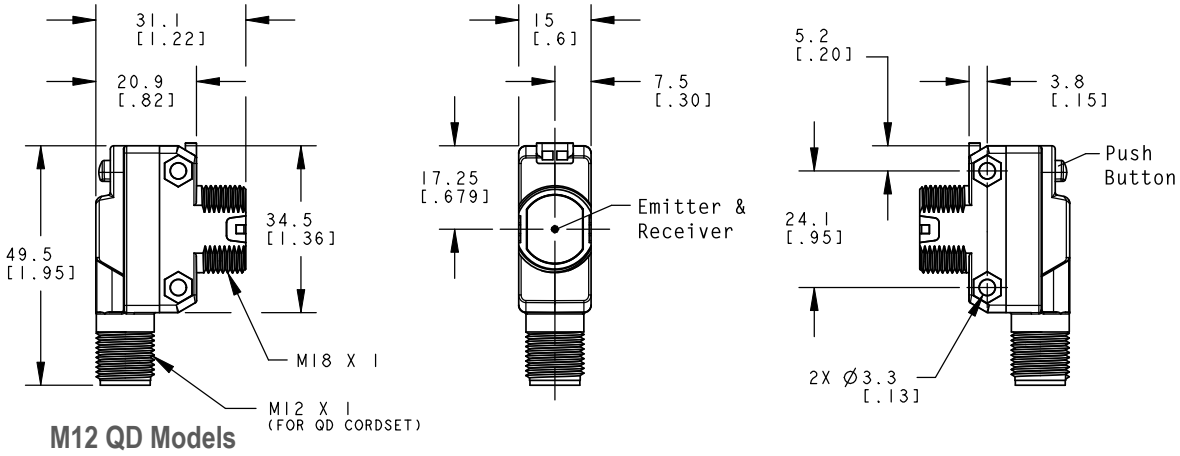
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Industry Canada ICES-003(A)

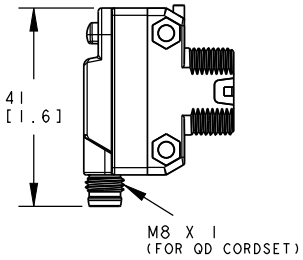
This device complies with CAN ICES-3 (A)/NMB-3(A). Operation is subject to the following two conditions: 1) This device may not cause harmful interference; and 2) This device must accept any interference received, including interference that may cause undesired operation.

Cet appareil est conforme à la norme NMB-3(A). Le fonctionnement est soumis aux deux conditions suivantes : (1) ce dispositif ne peut pas occasionner d'interférences, et (2) il doit tolérer toute interférence, y compris celles susceptibles de provoquer un fonctionnement non souhaité du dispositif.

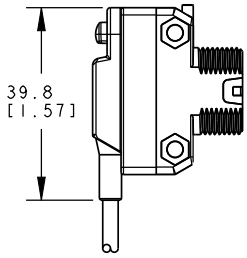
Dimensions



M12 QD Models



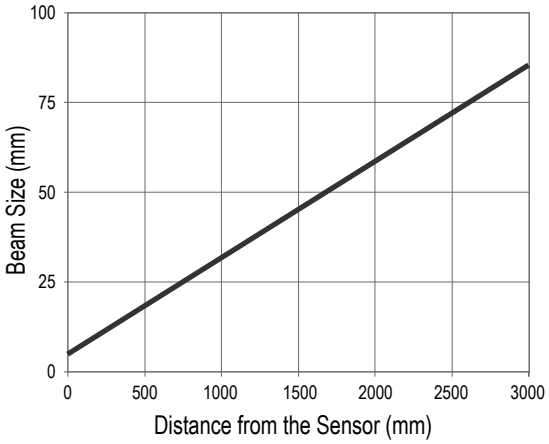
M8 QD Models



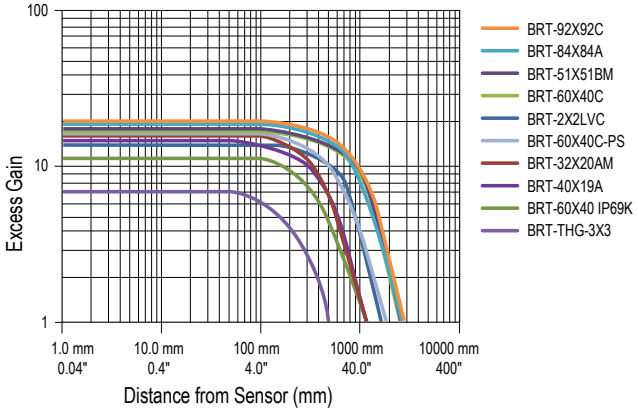
Cable Models

Performance Curves

Spot size vs. distance



Excess gain



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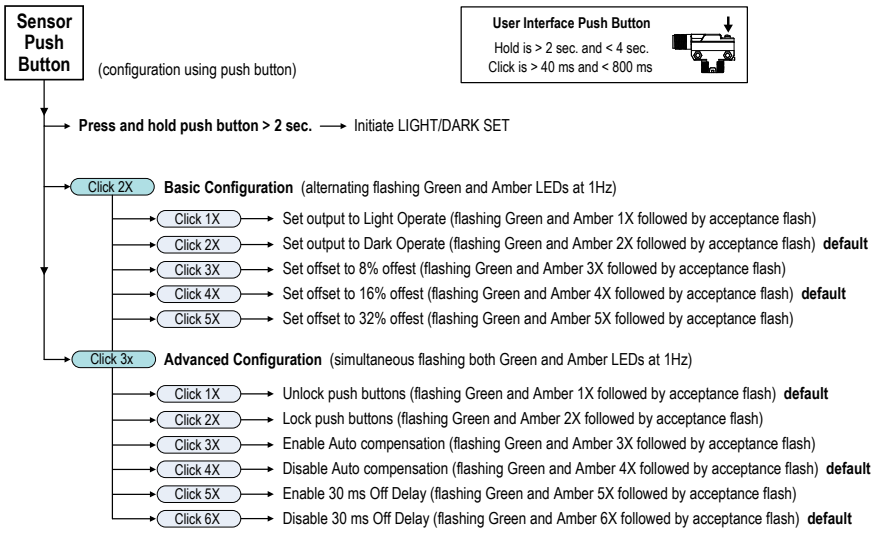
Chapter 2 Sensor Configuration

Sensor configuration can be implemented with the push button or the remote program wire. Configuration options include two sensing modes: Light Set and Dark Set. Configuration options include the features shown in Push Button Input Flowchart and Remote Input Flowchart.

Push Button Configuration

Use the push button to configure the sensor. Click the push button according to Push Button Input Flowchart. After a configuration has been selected the sensor flashes both the green and amber LED to show which configuration was selected followed by a rapid flashing of both the green and amber LED in unison to show acknowledgement and acceptance of the configuration.

Push Button Input Flowchart

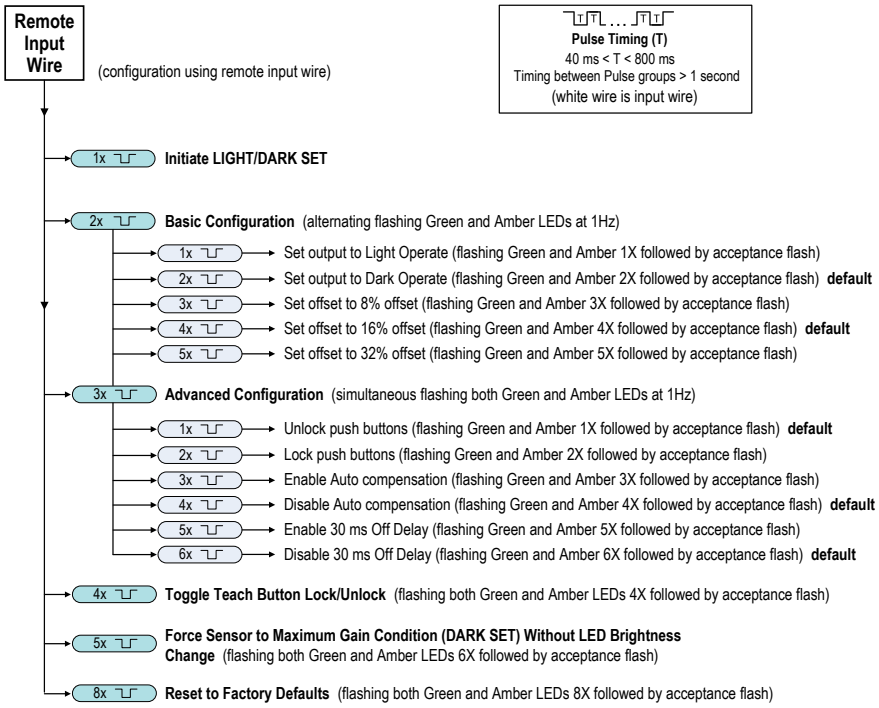


Remote Input Configuration

Use the remote input function to configure the sensor remotely. Connect the white wire of the sensor as shown in the wiring diagram. Pulse the remote line according to the Remote Input Flowchart. After a configuration has been selected, both the green and amber LEDs will flash to show which configuration was selected, followed by a rapid flashing of both the green and amber LED in unison to show acknowledgement and acceptance of the configuration.

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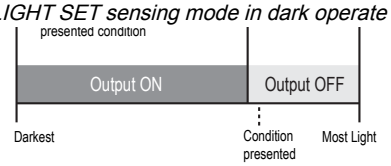
Remote Input Flowchart



Light Set

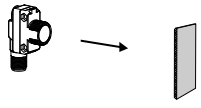
Use Light SET for low contrast applications. Use either the push button or remote input wire procedure to configure the sensor.

LIGHT SET sensing mode in dark operate



Example Applications For Offset Percentages	
8%	Recommended for very low contrast applications with stable environmental conditions.
16%	Recommended for most clear object detection applications in typical machine industrial environments.
32%	Recommended for high contrast detections such as brown or green bottles, or opaque objects. This setting tolerates environmental challenges such as vibrations and dust build-up.

1. Prepare the sensor.

Method	Action		Result
Push Button	Clear the light path to the reflector.		
Remote Line	Clear the light path to the reflector.		

2. Access Light Set mode and set the sensing condition.

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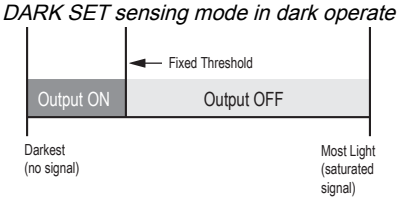
Method	Action		Result
Push Button	Press and hold the push button 2 to 4 seconds.		**LIGHT SET Configuration Accepted** **Green LED Indicator:**Flashes 3 times.**Green and Amber LED Indicators:**Acceptance Flash - both LEDs flash 5 times rapidly in unison. The sensor returns to Run mode with the new settings. **LIGHT SET Configuration Not Accepted** If there is not enough return signal, the sensor will perform in DARK SET indicated by the green and amber LED indicators flashing in unison 2 times followed by the green and amber LED indicators flashing rapidly in unison 5 times.
Remote Line	Single-pulse the remote line.		

Dark Set

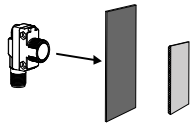
Dark SET (maximum operating range) is the factory default setting and provides maximum sensing range, ease of alignment, and reliable detection of opaque objects. Dark Set provides a fixed threshold whenever the sensor is taught an obstructed view.

NOTE: The sensor's light spot is made brighter for 60 seconds to assist in aligning the sensor to the reflector. This is particularly useful for long range applications.

DARK SET sensing mode in dark operate



1. Prepare the sensor.

Method	Action		Result
Push Button	Block the light path to the reflector.		
Remote Line	Block the light path to the reflector.		

2. Access Dark Set mode and set the sensing condition.

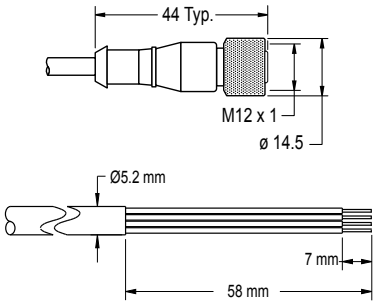
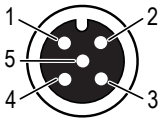
Method	Action		Result
Push Button	Press and hold the push button 2 to 4 seconds.		**DARK SET Configuration Accepted** **Green and Amber LED Indicators:**Flash 2 times.**Green and Amber LED Indicators:**Acceptance flash - both LEDs flash 5 times rapidly in unison. The sensor returns to Run mode with the new settings. **DARK SET Configuration Not Accepted** If there is too much return signal, the sensor will perform in LIGHT SET indicated by the green LED indicator flashing 3 times followed by the green and amber LED indicators flashing rapidly in unison 5 times.
Remote Line	Single-pulse the remote line.		

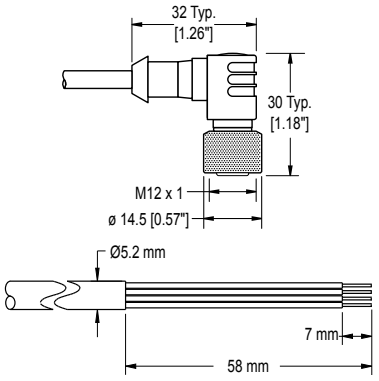
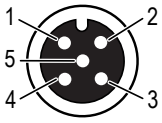
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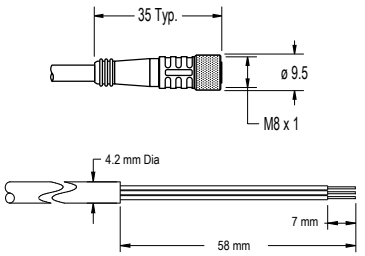
Chapter 3 Accessories

Cordsets

Use the M12 cordsets with the QS18 models with an M12 quick disconnect connector. Use the M8 cordsets with the QS18 models with an M8 QD.

4-pin A-Code Single-Ended M12 Female Cordsets (datasheet p/n 235937)				
Model	**Length**	**Dimensions (mm)**	**Pinout (Female)**	
BC-M12F4-22-1	1 m (3.28 ft)			1 = Brown 2 = White 3 = Blue 4 = Black 5 = Unused
BC-M12F4-22-2	2 m (6.56 ft)			
BC-M12F4-22-5	5 m (16.4 ft)			
BC-M12F4-22-8	8 m (26.25 ft)			
BC-M12F4-22-10	10 m (30.81 ft)			
BC-M12F4-22-15	15 m (49.2 ft)			
BC-M12F4-22-20	20 m (65.61 ft)			
BC-M12F4-22-25	25 m (82.02 ft)			
BC-M12F4-22-30	30 m (98.42 ft)			

4-pin A-Code Single-Ended M12 Female Right-Angle Cordsets (datasheet p/n 235937)				
Model	**Length**	**Dimensions (mm)**	**Pinout (Female)**	
BC-M12F4A-22-1	1 m (3.28 ft)			1 = Brown 2 = White 3 = Blue 4 = Black 5 = Unused
BC-M12F4A-22-2	2 m (6.56 ft)			
BC-M12F4A-22-5	5 m (16.4 ft)			
BC-M12F4A-22-8	8 m (26.25 ft)			
BC-M12F4A-22-10	10 m (30.81 ft)			
BC-M12F4A-22-15	15 m (49.2 ft)			

4-pin Single-Ended M8 Female Cordsets (datasheet p/n 236623)				
Model	**Length**	**Dimensions (mm)**	**Pinout (Female)**	
BC-M8F4-24-0.5	0.5 m (1.64 ft)			1 = Brown 2 = White 3 = Blue 4 = Black
BC-M8F4-24-1	1 m (3.28 ft)			
BC-M8F4-24-2	2 m (6.56 ft)			
BC-M8F4-24-5	5 m (16.4 ft)			
BC-M8F4-24-8	8 m (26.25 ft)			
BC-M8F4-24-10	10 m (30.81 ft)			

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Retroreflectors

BRT-51X51BM

- Square, acrylic target
- Reflectivity Factor: 1.5
- Temperature: –20 °C to +50 °C (–4 °F to +122 °F)
- Micro-prism geometry
- Optional brackets are available
- Reflector size: 51 mm × 51 mm
- Approximate size: 51 mm × 61 mm × 6.2 mm
- Two 4.6 mm diameter slots for mounting
- CAD Files: DXF, PDF, IGS, STP



BRT-60X40C and **BRT-60X40CM** (Microprism)

- Rectangular, acrylic target
- Reflectivity Factor: 1.4
- Temperature: –20 °C to +60 °C (–4 °F to +140 °F)
- Optional brackets are available
- Approximate size: 40 mm × 60 mm
- **BRT-60X40C** CAD Files: DXF, PDF, IGS, STP
- **BRT-60X40CM** CAD Files: DXF, PDF, IGS, STP



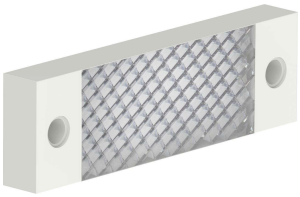
BRT-92X92C

- Square, acrylic target
- Reflectivity Factor: 3.0
- Temperature: –20 °C to +60 °C (–4 °F to +140 °F)
- Optional brackets are available
- Reflector size: 92 mm × 92 mm
- Approximate size: 100 mm × 100 mm × 9 mm
- Two 3.5 mm diameter mounting holes
- CAD Files: DXF, PDF, IGS, STP



BRT-40X19A

- Rectangular, acrylic target
- Reflectivity Factor: 1.3
- Temperature: –20 °C to +60 °C (–4 °F to +140 °F)
- Reflector size: 18 mm × 40 mm
- Approximate size: 18 mm × 60 mm × 7.3 mm
- Two 4 mm diameter mounting holes, 50 mm centers
- CAD Files: DXF, PDF, IGS, STP



BRT-60X40IP69K

- Rectangular, acrylic target (color is amber)
- Reflectivity Factor: 0.7
- Temperature: –20 °C to +140 °C (–4 °F to +284 °F)
- Chemically resistant
- IP69K washdown rated
- Optional brackets are available
- Approximate size: 40 mm × 60 mm
- CAD Files: DXF, PDF, IGS, STP



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BRT-60X40C-PS

- Rectangular, polystyrene target
- Reflectivity Factor: 1.1
- Temperature: –20 °C to +60 °C (–4 °F to +140 °F)
- Optional brackets are available
- Chemically compatible with hydrogen peroxide
- Yellow back
- Approximate size: 40 mm × 60 mm



2-inch retroreflective tape, 2.5 m (100 in)

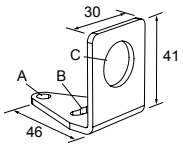
Model	Reflectivity Factor	Maximum Temperature	Size
BRT-THG-2-100	0.7	+60 °C (+140 °F)	50 mm (2 in) wide, 2.5 m (100 in) long

Brackets

SMB18A

- Right-angle mounting bracket with a curved slot for versatile orientation
- 12-ga. stainless steel
- 18 mm sensor mounting hole
- Clearance for M4 (#8) hardware
- CAD Files: DXF, PDF, IGS, STP

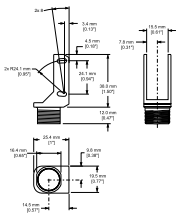
Hole center spacing: A to B = 24.2
Hole size: A = ø 4.6, B = 17.0 × 4.6, C = ø 18.5



SMBQS18Y

- Die-cast bracket for 18 mm holes
- Includes metal hex nut and lock washer
- Allows ± 8° for cabled sensors
- CAD Files: DXF, PDF, IGS, STP

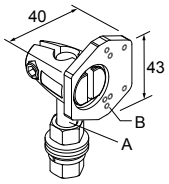
Hole size: A = ø 15.3



SMBQ4X..

- Swivel bracket with tilt and pan movement for precision adjustment
- Easy sensor mounting to extruded rail T-slots
- Metric and inch size bolts are available
- Side mounting of some sensors with the 3 mm screws included with the sensor
- SMBQ4XFA CAD Files: DXF, PDF, IGS, STP
- SMBQ4XFAM10 CAD Files: DXF, PDF, IGS, STP

B = 7 × M3 × 0.5
Bolt thread (A): 3/8 - 16 × 2¼ in for SMBQ4XFA; M10 - 1.5 × 50 for SMBQ4XFAM10; n/a; no bolt included. Mounts directly to 12 mm (½ in) rods for SMBQ4XFMA1

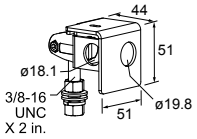


SMB18AFA..

- Protective, swivel bracket with tilt and pan movement for precision adjustment
- Easy sensor mounting to extruded rail T-slots
- Metric and inch size bolts available
- Mounting hole for 18 mm sensors

Hole size: B = ø 18.1

Bolt Thread (A):
SMB18AFA = 3/8 - 16 × 2 in
CAD Files: DXF, PDF, IGS, STP
SMB18AFAM10 = M10 - 1.5 × 50
CAD Files: IGS, STP



Continued on page 13

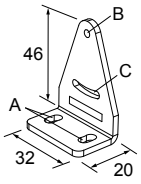
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Continued from page 12

SMB312S

- Stainless steel 2-axis, side-mount bracket
- CAD Files: DXF, PDF, IGS, STP

A = 4.3 × 7.5, B = diam. 3, C = 3 × 15.3



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Chapter 4 Product Support and Maintenance

Repairs and Translations (No Field-Replaceable Parts)

English

Contact Banner Engineering for troubleshooting of this device. **Do not attempt any repairs to this Banner device; it contains no field-replaceable parts or components.** If the device, device part, or device component is determined to be defective by a Banner Applications Engineer, they will advise you of Banner's RMA (Return Merchandise Authorization) procedure.

```
IMPORTANT: If instructed to return the device, pack it with care. Damage that occurs in return shipping is not covered by warranty.
```

Obtain assistance with product repairs by contacting your local Banner Engineering Corp distributor or by calling Banner directly at (763) 544-3164. Access literature translated into your native language on the Banner website at www.bannerengineering.com or contact Banner directly at (763) 544-3164.

Deutsch

Wenden Sie sich zur Fehlerbehebung dieses Geräts an Banner Engineering. **Versuchen Sie nicht, Reparaturen an diesem Banner-Gerät vorzunehmen. Das Gerät enthält keine am Einsatzort auszuwechselnden Teile oder Komponenten.** Wenn ein Banner-Anwendungstechniker zu dem Schluss kommt, dass dieses Gerät, ein Teil oder eine Komponente davon defekt ist, erhalten Sie von dem Techniker Erläuterungen zu Banners RMA-Verfahren (Return Merchandise Authorization) für die Warenrückgabe.

```
WICHTIG: Wenn Sie der Techniker anweist, das Gerät zurückzusenden, verpacken Sie es bitte sorgfältig. Transportschäden bei der Rücksendung werden von der Garantie nicht abgedeckt.
```

Unterstützung bei Produktreparaturen erhalten Sie von Ihrem örtlichen Banner Engineering Corp Händler oder direkt von Banner unter Tel. (763) 544-3164. Die in Ihre Muttersprache übersetzte Literatur finden Sie auf der Banner-Website unter www.bannerengineering.com oder kontaktieren Sie Banner direkt unter Tel. (763) 544-3164.

Français

Pour plus d'informations sur le dépannage du produit, contactez Banner Engineering. **Ne tentez pas de réparer ce dispositif Banner. Il ne contient aucun composant ou pièce qui puisse être remplacé sur place.** Si un ingénieur de Banner conclut que le dispositif ou l'une de ses pièces ou composants est défectueux, il vous informera de la procédure à suivre pour le retour des produits (RMA).

```
Important : Si vous devez retourner le dispositif, emballez-le avec soin. Les dégâts occasionnés pendant le transport de retour ne sont pas couverts par la garantie.
```

Pour vous aider lors de la réparation de produits, contactez votre distributeur Banner local our appelez directement Banner au (763) 544-3164. La documentation traduite dans votre langue est disponible sur le site internet de Banner www.bannerengineering.com ou contactez directement Banner au (763) 544-3164.

Italiano

Per le procedure di individuazione e riparazione dei guasti di questo dispositivo, contattare Banner Engineering. **Non tentare di riparare questo dispositivo Banner, in quanto non contiene parti o componenti sostituibili dall'utente.** Se il dispositivo, una parte del dispositivo o un componente del dispositivo viene riscontrato difettoso da un tecnico Banner, il nostro personale vi comunicherà la procedura da seguire per ottenere l'autorizzazione al reso.

```
Importante: Se si ricevono istruzioni di rispedire il dispositivo al produttore, imballarlo con cura. I danni dovuti al trasporto non sono coperti dalla garanzia.
```

Per assistenza nelle riparazioni dei prodotti, contattare il distributore locale Banner Engineering Corp o contattare direttamente Banner al numero (763) 544-3164. È possibile accedere alla documentazione tradotta nella propria lingua madre sul sito Web Banner all'indirizzo www.bannerengineering.com o contattare direttamente Banner al numero (763) 544-3164.

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Español

Comuníquese con Banner Engineering para solucionar de problemas de este dispositivo. **No intente ninguna reparación a este dispositivo de Banner, contiene piezas o componente que no se pueden cambiar en terreno.** Si algún ingeniero de aplicaciones de Banner determina que el dispositivo, alguna de las piezas o alguno de los componentes del dispositivo está defectuoso, le informará el procedimiento de autorización de devolución de mercancía (RMA, por sus siglas en inglés) de Banner.

Importante: Si se le solicita devolver el dispositivo, empáquelo con cuidado. Puede haber daños durante el envío de devolución que no estén cubiertos por la garantía.

Para reparaciones de productos, por favor contacte a su distribuidor local de Banner Engineering o llame a Banner directamente al 00 1 (763) 544-3164. Vea la literatura traducida en su idioma en el sitio web Banner en www.bannerengineering.com o comuníquese con Banner directamente al 00 1 (763) 544-3164.

中国人

如需对本装置进行故障排查，请联系邦纳。**请勿尝试自行维修该邦纳装置；本装置不包含任何可在现场更换的部件或组件。** 若经邦纳应用工程师确认设备、设备部件或组件存在缺陷，他们将告知您邦纳退货授权 (RMA) 流程。

重要注意事项： 如被要求退回装置，请妥善包装后寄回。退货运输过程中发生的损坏不在保修范围内。

请联系当地的 Banner Engineering Corp 经销商或直接致电 Banner +1 (763) 544-3164，以获得产品维修帮助。请访问邦纳网站 www.bannerengineering.com 或直接拨打 +1 (763) 544-3164 联系邦纳，获取翻译成您母语的资料。

한국인

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중요: 제품을 반송하도록 안내 받으셨다면 잘 포장해주십시오. 반송 도중에 발생한 손상은 보증 서비스가 적용되지 않습니다.

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日本語

この装置のトラブルシューティングについては、バナーエンジニアリングにお問い合わせください。**このバナー装置には、現場では交換できない部品またはコンポーネントが含まれているため、修理を試みてはいけません。** バナーのアプリケーションエンジニアが装置、装置の部品、または装置のコンポーネントに欠陥があると判断した場合、バナーのRMA（返品承認）手続きについてお知らせします。

重要 ： 返品を指示された場合は、装置を丁寧に梱包してください。返品時に発生した破損は保証の対象外となります。

製品の修理については、最寄りのBanner Engineering Corp代理店にお問い合わせいただくか、米国+1 (763) 544-3164まで直接お電話でお問い合わせください。バナーのウェブサイト（www.bannerengineering.com）でお客様の言語に翻訳された資料にアクセスするか、米国+1 (763) 544-3164まで直接お電話でお問い合わせください。

čeština

Pro řešení problémů se zařízením kontaktujte společnost Banner Engineering. **Neprovádějte žádné opravy zařízení Banner. Neobsahují žádné komponenty nebo části, které by byly vyměnitelné.** Pokud je zařízení, jeho část nebo díl označen technikem společnosti Banner jako poškozený, bude Vám doporučeno vyplnit reklamační RMA protokol.

Důležité: Pokud byl vydán požadavek na vrácení zařízení, pečlivě ho zabalte. Poškození vzniklé při dopravě není považováno za záruční opravu.

Pokud produkt potřebuje opravu, vyžádejte si pomoc od místního distributora společnosti Banner Engineering Corp nebo přímo na telefonním čísle (763) 544-3164. Dokumentaci přeloženou do vašeho jazyka si vyhledejte na webových stránkách společnosti Banner na adrese www.bannerengineering.com nebo se obraťte přímo na společnost Banner na telefonním čísle (763) 544-3164.

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Polski

W celu rozwiązania problemów z urządzeniem należy skontaktować się z działem technicznym firmy Banner Engineering. **Pod żadnym pozorem nie próbuj naprawiać tego urządzenia firmy Banner; nie zawiera ono części ani elementów, które można wymieniać samodzielnie.** Jeśli urządzenie, jego część lub element zostaną uznane za wadliwe przez inżyniera technicznego Banner, poinformuje on użytkownika o firmowej procedurze zwrotu towaru (RMA) firmy Banner.

Ważne: Jeśli urządzenie ma zostać zwrócone, należy je starannie zapakować. Uszkodzenia powstałe podczas odsyłki nie są objęte gwarancją.

Aby uzyskać pomoc w zakresie naprawy produktu, należy skontaktować się z lokalnym dystrybutorem Banner Engineering Corp lub zadzwonić bezpośrednio do firmy Banner pod numer (763) 544-3164. Dostęp do literatury przetłumaczonej na swój język ojczysty można uzyskać na stronie internetowej firmy Banner pod adresem www.bannerengineering.com lub kontaktując się bezpośrednio z firmą Banner pod numerem (763) 544-3164.

Português

Entre em contato com a Engenharia da Banner para a solução de problemas deste dispositivo. **Não tente fazer nenhum reparo neste dispositivo Banner; ele não contém peças ou componentes substituíveis em campo.** Se um técnico de aplicações da Banner determinar que o dispositivo, peça ou componente do dispositivo está com defeito, ele o informará sobre o procedimento de RMA (Autorização de Devolução de Mercadoria) da Banner.

Importante: Se for instruído a devolver o dispositivo, embale-o com cuidado. Os danos ocorridos no transporte de devolução não são cobertos pela garantia.

Obtenha assistência para reparos do produto entrando em contato com o distribuidor local da Banner Engineering Corp ou ligando diretamente para a Banner no telefone (763) 544-3164. Acesse a literatura traduzida para seu idioma nativo no site da Banner em www.bannerengineering.com ou entre em contato diretamente com a Banner pelo telefone (763) 544-3164.

Türkçe

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ÖNEMLİ: İade etmeniz istenirse, cihazı dikkatli bir şekilde paketleyin. İade nakliyesinde meydana gelecek hasarlar garanti kapsamında değildir.

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Contact Us

Banner Engineering Corp. | 9714 Tenth Avenue North | Plymouth, MN 55441, USA | Phone: + 1 888 373 6767

For worldwide locations and local representatives, visit www.bannerengineering.com.

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