



Description

The 42KB family of photoelectric sensor offers high performance sensing capability in a compact rectangular package. Like the 42KA family, the 42KB is intended for use in applications where small size is the key criteria.

Two basic package styles are offered—end view and side view. As seen in the illustrations above, the placement of the sensor optics determines the view. End view sensors have the optics and cable located at opposite ends while side view sensors are located on adjacent sides.

For increased application flexibility, the 42KB is available in four sensing modes to cover a variety of applications. A single-turn sensitivity adjustment is provided on each sensor for setting the sensor during the installation phase.

General Specifications

Unit Protection	Output short-circuit (NPN version only), reverse polarity, false pulse, transient noise
Supply Voltage	12–24V DC
Current Consumption	30mA maximum
Output Type	NPN or PNP by model
Output Mode	Light/dark operate selectable
Output Rating	100mA @ 24V DC
Response Time	350µs
Housing Material	Polyarylate
Lens Material	Acrylic, polycarbonate, polyarylate by model
LED Indicators	See User Interface on page 1–232
Connection Types	2m 500V cable, 3-pin DC pico QD
Supplied Accessories	Mounting bracket, adhesive apertures (transmitted beam models), screwdriver, reflector (retroreflective models)
Optional Accessories	Cordsets, mounting brackets (see Section 5)
Operating Environment	NEMA 1, 4, 6, 12, 13; IP67 (IEC60529)
Vibration	10–55Hz, 1mm amplitude, Meets or exceeds IEC 60947–5–2
Shock	30g with 1ms pulse duration, Meets or exceeds IEC 60947–5–2
Operating Temperature	–25°C to +55°C (–13°F to +131°F)
Relative Humidity	5...85%
Approvals	UL listed, CSA certified, CE marked for all applicable directives

Features

- Compact rectangular package
- Four sensing modes
- Sensitivity adjustment
- Selectable light/dark operate
- Highly visible LED Indicators
- NPN or PNP output models
- 2m cable or pico QD connections

General Information

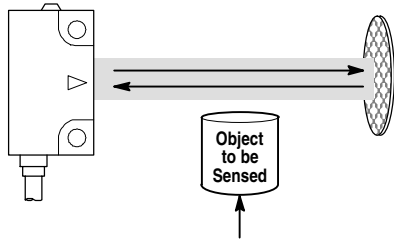
- Wiring Diagram page 1–232
- Dimensions page 1–232

Sensing Modes

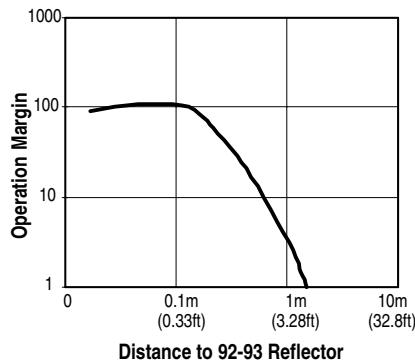
- Retroreflective page 1–233
- Standard Diffuse page 1–234
- Sharp Cutoff Diffuse page 1–236
- Transmitted Beam page 1–237

Accessories

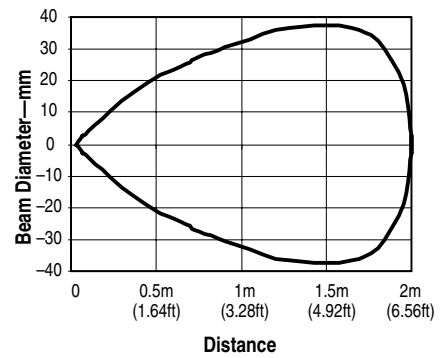
- Mounting Assemblies page 1–301
- Apertures page 1–305
- Reflectors, Reflective Tape page 1–311



Typical Response Curve



Beam Pattern



Specifications

Field of View	5°
Emitter LED	Visible red 660nm

QD Cordsets and Accessories

Description	Catalog Number
Pico QD Cordset, 3-pin 2m	889P-F3AB-2
Side View Bracket (included)	60-2633
End View Bracket (included)	60-2632
Reflectors (included)	92-93

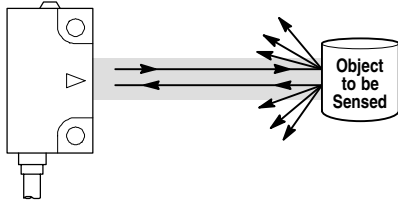
Selection Guide

Operating Voltage Supply Current	Sensing Distance	Output Energized	Output Type Capacity Response Time	Max Leakage Current	End or Side View ¹	Connection Type	Catalog Number
12-24V DC ±10% 20mA	3mm (0.12in) to 2m (6.6ft)	Light/Dark Selectable	NPN Output: 100mA Stability: 50mA 350µs	0.5mA	Side	2m 500V cable	42KB-U2LNSN-A2
						3-pin pico QD	42KB-U2LNSN-Y3
12-24V DC ±10% 25mA			PNP Output: 100mA 350µs			2m 500V cable	42KB-U2LPSN-A2
						3-pin pico QD	42KB-U2LPSN-Y3

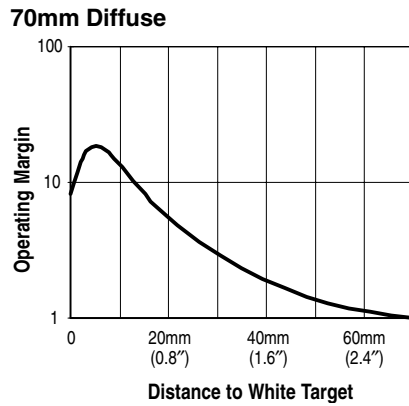
¹ See page 1-232 for detailed dimensions.

42KB Standard Diffuse

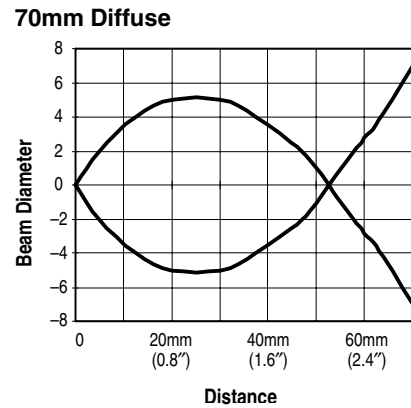
Micro Rectangular Style



Typical Response Curve



Beam Pattern



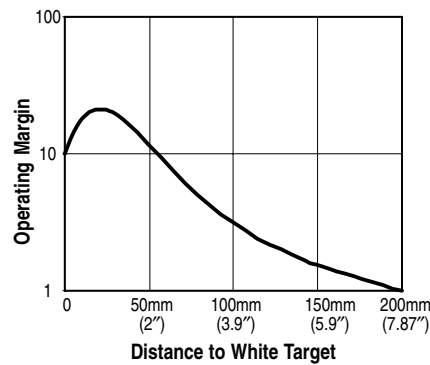
Specifications

Field of View	50mm Infrared sensors: 20° All others: 12°
Emitter LED	See Selection Guide

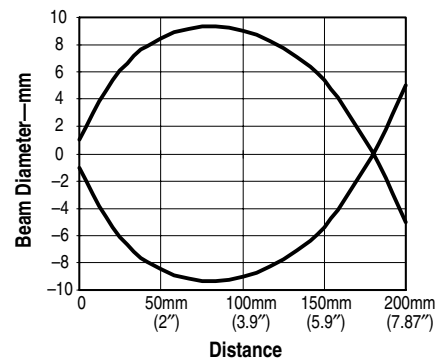
QD Cordsets and Accessories

Description	Catalog Number
Pico QD Cordset, 3-pin 2m	889P-F3AB-2
Side View Bracket (included)	60-2633
End View Bracket (included)	60-2632

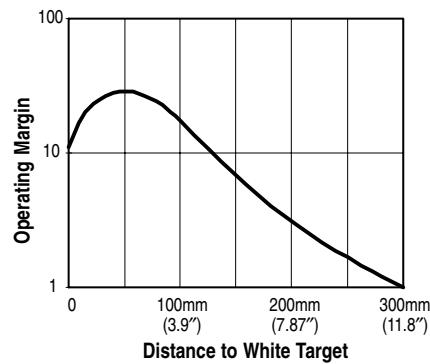
200mm Diffuse



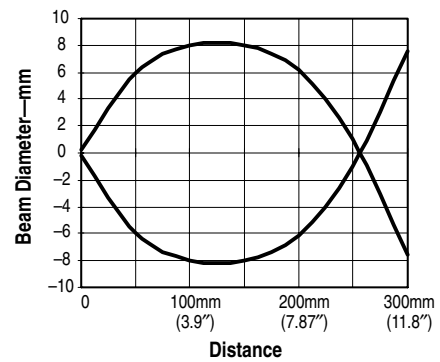
200mm Diffuse



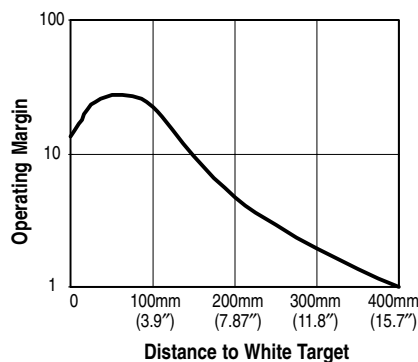
300mm Diffuse



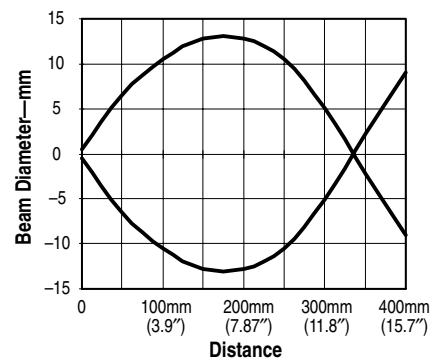
300mm Diffuse



400mm Diffuse



400mm Diffuse



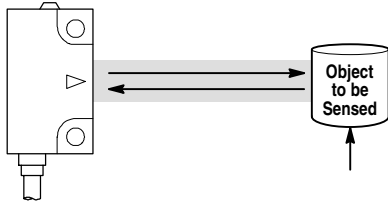
Selection Guide

Operating Voltage Supply Current	Sensing Distance	Output Energized	LED Source	Output Type Capacity Response Time	Max Leakage Current	End or Side View ^❶	Connection Type	Catalog Number					
12–24V DC ±10% 25mA	3mm (0.12in) to 70mm (2.8in)		IR 950nm	NPN Output: 100mA, Stability: 50mA 350µs	0.5mA	End	2m 500V cable	42KB–D1LNED–A2					
							3-pin pico QD	42KB–D1LNED–Y3					
Side				2m 500V cable		42KB–D1LNED–A2							
				3-pin pico QD		42KB–D1LNED–Y3							
12–24V DC ±10% 28mA				PNP Output: 100mA 350µs		End	2m 500V cable	42KB–D1LPED–A2					
							3-pin pico QD	42KB–D1LPED–Y3					
Side							2m 500V cable	42KB–D1LPED–A2					
							3-pin pico QD	42KB–D1LPED–Y3					
12–24V DC ±10% 22mA	3mm (0.12in) to 200mm (7.9in)	Light/Dark Selectable	IR 900nm	NPN Output: 100mA, Stability: 50mA 350µs	0.5mA	End	2m 500V cable	42KB–D1LNEG–A2					
PNP Output: 100mA 350µs				3-pin pico QD			42KB–D1LNEG–Y3						
12–24V DC ±10% 25mA												2m 500V cable	42KB–D1LPEG–A2
3-pin pico QD												42KB–D1LPEG–Y3	
12–24V DC ±10% 20mA	3mm (0.12in) to 300mm (11.8in)		Red 700nm	NPN Output: 100mA, Stability: 50mA 350µs	0.5mA		2m 500V cable	42KB–D2LNEH–A2					
PNP Output: 100mA 350µs				3-pin pico QD			42KB–D2LNEH–Y3						
12–24V DC ±10% 25mA												2m 500V cable	42KB–D2LPEH–A2
3-pin pico QD												42KB–D2LPEH–Y3	
12–24V DC ±10% 22mA			IR 900nm	NPN Output: 100mA, Stability: 50mA 350µs	0.5mA	Side	2m 500V cable	42KB–D1LNESH–A2					
PNP Output: 100mA 350µs				3-pin pico QD			42KB–D1LNESH–Y3						
12–24V DC ±10% 25mA												2m 500V cable	42KB–D1LPSH–A2
3-pin pico QD												42KB–D1LPSH–Y3	
12–24V DC ±10% 20mA	3mm (0.12in) to 400mm (15.8in)		Red 700nm	NPN Output: 100mA, Stability: 50mA 350µs	0.5mA		2m 500V cable	42KB–D2LNSG–A2					
PNP Output: 100mA 350µs				3-pin pico QD			42KB–D2LNSG–Y3						
12–24V DC ±10% 25mA												2m 500V cable	42KB–D2LPSG–A2
3-pin pico QD												42KB–D2LPSG–Y3	

❶ See page 1–232 for detailed dimensions.

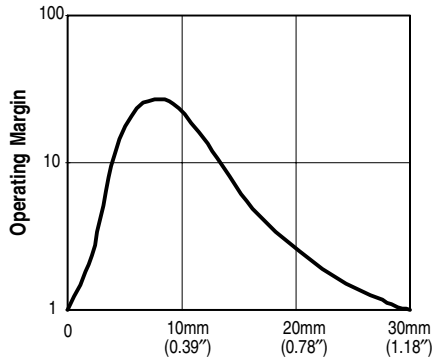
42KB Sharp Cutoff Diffuse

Micro Rectangular Style



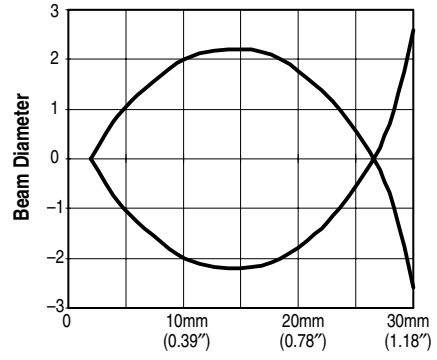
Typical Response Curves

30mm Sharp Cutoff Diffuse



Beam Patterns

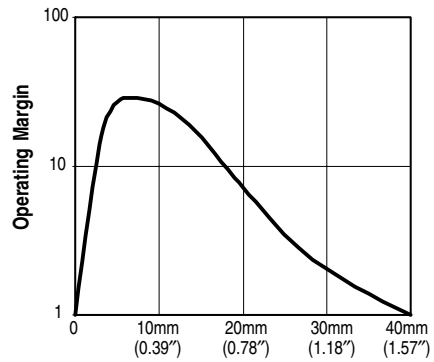
30mm Sharp Cutoff Diffuse



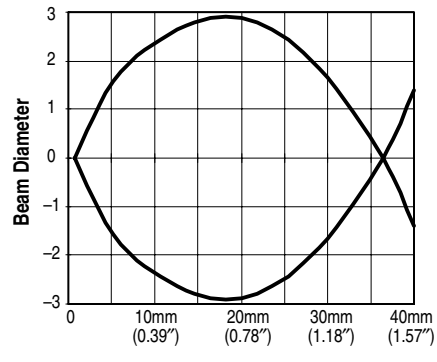
Specifications

Field of View	Infrared sensors: 15° Visible red sensors: 20°
Emitter LED	Infrared 900nm or Visible red 660nm (See Selection Guide)

40mm Sharp Cutoff Diffuse



40mm Sharp Cutoff Diffuse



QD Cordsets and Accessories

Description	Catalog Number
Pico QD Cordset, 3-pin 2m	889P-F3AB-2
Side View Bracket (included)	60-2633
End View Bracket (included)	60-2632

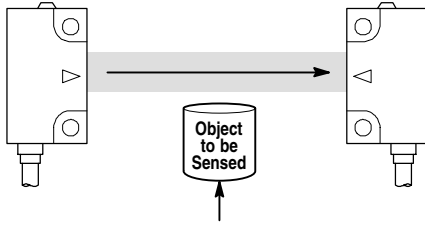
Selection Guide

Operating Voltage Supply Current	Sensing Distance	Output Energized	LED Source	Output Type Capacity Response Time	Max Leakage Current	End or Side View①	Connection Type	Catalog Number	
12-24V DC ±10% 20mA	3mm (0.12in) to 30mm (1.2in)	Light/Dark Selectable	Red 660nm	NPN Output: 100mA Stability: 50mA 350µs	0.5mA	Side	2m 500V cable	42KB-S2LNSA-A2	
							3-pin pico QD	42KB-S2LNSA-Y3	
12-24V DC ±10% 22mA	3mm (0.12in) to 40mm (1.6in)		IR 900nm				PNP Output: 100mA 350µs	2m 500V cable	42KB-S1LNSB-A2
								3-pin pico QD	42KB-S1LNSB-Y3
12-24V DC ±10% 25mA	3mm (0.12in) to 30mm (1.2in)		Red 660nm	PNP Output: 100mA 350µs			2m 500V cable	42KB-S2LPSA-A2	
							3-pin pico QD	42KB-S2LPSA-Y3	
12-24V DC ±10% 25mA	3mm (0.12in) to 40mm (1.6in)	IR 900nm	PNP Output: 100mA 350µs	2m 500V cable	42KB-S1LPSB-A2				
				3-pin pico QD	42KB-S1LPSB-Y3				

① See page 1-232 for detailed dimensions.

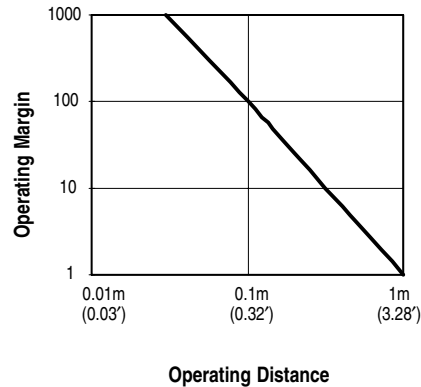
42KB Transmitted Beam

Micro Rectangular Style



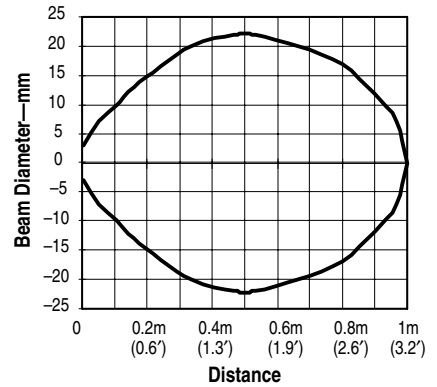
Typical Response Curves

1m Transmitted Beam



Beam Patterns

1m Transmitted Beam



Light source and receivers are packaged together in pairs. Order one catalog number to receive both light source and receiver. Light sources and receivers are not available separately.

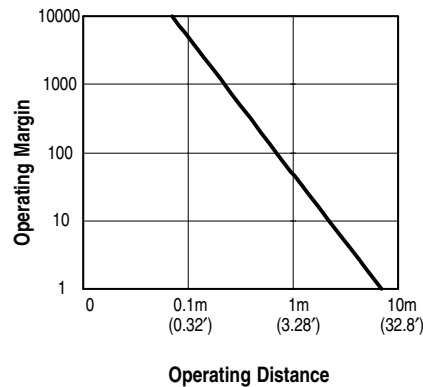
Specifications

Field of View	1m sensors: 50° All others: 24°
Emitter LED	Infrared 880nm or Visible red 700nm (See Selection Guide)

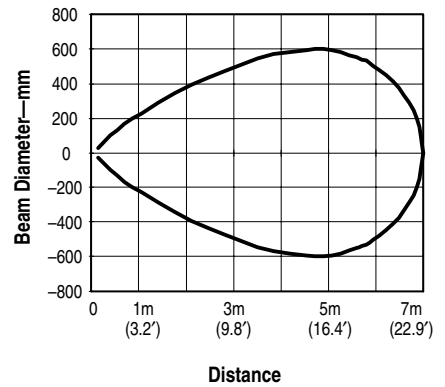
QD Cordsets and Accessories

Description	Catalog Number
Pico QD Cordset, 3-pin 2m	889P-F3AB-2
Side View Bracket (included)	60-2633
End View Bracket (included)	60-2632
Aperture, 1mm (10 pcs)	61-6726
Aperture, 2mm (10 pcs)	61-6727
Aperture, 3mm (10 pcs)	61-6728
Aperture, 1x5mm (10 pcs)	61-6729

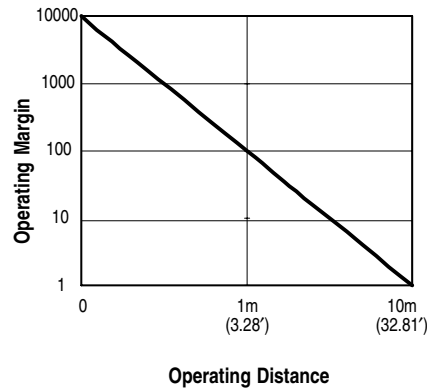
7m Transmitted Beam



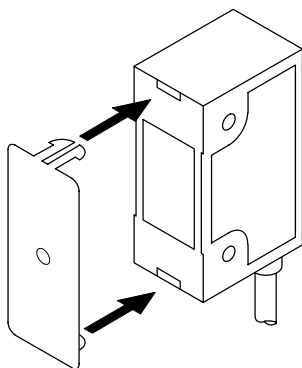
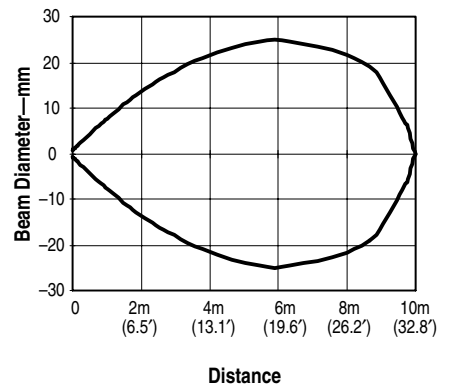
7m Transmitted Beam



10m Transmitted Beam



10m Transmitted Beam



Insert Tabs into the Mounting Holes on the Sensor

42KB Transmitted Beam

Micro Rectangular Style

Selection Guide

Operating Voltage Supply Current	Sensing Distance	Output Energized	LED Source	Output Type Capacity Response Time	Max Leakage Current	End or Side View ^❶	Connection Type	Catalog Number ^❷
12–24V DC ±10% Source: 23mA Receiver: 18mA	3mm (0.12in) to 1m (3.2ft)	Light/Dark Selectable	IR 880nm	NPN Output: 100mA, Stability: 50mA 350µs	0.5mA	End	2m 500V cable	42KB–T1LNEL–A2 ^❸
							3-pin pico QD	42KB–T1LNEL–Y3
	Side					2m 500V cable	42KB–T1LNLSL–A2 ^❸	
						3-pin pico QD	42KB–T1LNLSL–Y3	
	End					3mm (0.12in) to 7m (23.0ft)	2m 500V cable	42KB–T1LNEQ–A2
							3-pin pico QD	42KB–T1LNEQ–Y3
Side	2m 500V cable	42KB–T1LNSQ–A2 ^❸						
	3-pin pico QD	42KB–T1LNSQ–Y3						
12–24V DC ±10% Source: 20mA Receiver: 18mA	3mm (0.12in) to 10m (32.8ft)	Red 700nm					2m 500V cable	42KB–T2LNSR–A2 ^❸
							3-pin pico QD	42KB–T2LNSR–Y3
							2m 500V cable	42KB–T1LPEL–A2 ^❸
12–24V DC ±10% Source: 23mA Receiver: 21mA	3mm (0.12in) to 1m (3.2ft)	IR 880nm	PNP Output: 100mA 350µs	0.5mA	End	2m 500V cable	42KB–T1LPEL–A2 ^❸	
						3-pin pico QD	42KB–T1LPEL–Y3	
	Side				2m 500V cable	42KB–T1LPSL–A2 ^❸		
					3-pin pico QD	42KB–T1LPSL–Y3		
	End				3mm (0.12in) to 7m (23.0ft)	2m 500V cable	42KB–T1LPEQ–A2	
						3-pin pico QD	42KB–T1LPEQ–Y3	
Side	2m 500V cable	42KB–T1LPSQ–A2 ^❸						
	3-pin pico QD	42KB–T1LPSQ–Y3						
12–24V DC ±10% Source: 20mA Receiver: 21mA	3mm (0.12in) to 10m (32.8ft)	Light/Dark Selectable	Red 700nm	PNP Output: 100mA 350µs	0.5mA	Side	2m 500V cable	42KB–T2LPSR–A2 ^❸
							3-pin pico QD	42KB–T2LPSR–Y3

❶ See page 1–232 for detailed dimensions.

❷ Adhesive apertures are included with these sensors.

❸ Optional metal apertures are available for these sensors under Accessories .

❹ Both a Light Source (Emitter) and Receiver are included in the package. To identify the Light Source, replace the “T” in the catalog number with “E.” To identify the receiver, replace the “T” in the catalog number with “R.” Example: 42KA–T2KNHK–A2 contains one 42KA–E2KNHK–A2 Light Source and one 42KA–R2KNHK–A2 Receiver. Light Sources and Receivers are not available separately.