



Q60 series Adjustable Field

Wave length

Infrared	880 nm
Visible red	665 nm

Adjustment

Cut-off point type AF	200...2000 mm
Cut-off point type AFV	200...1000 mm
ON and OFF delay	8 ms...16 s
Output	light or dark operate

Supply

Supply voltage	10...30 VDC (Q60BB6...)
	12...250 VDC or
	24...250 VAC (Q60VR3...)

Ripple V_{pp}	$\leq 10\%$
No load current	≤ 50 mA
Delay upon power up	150 ms

Protection

reverse polarity
transient voltages
false pulse on power-up
continuous overload &
short-circuit (Q60BB6...
only)

Output

Q60BB6...	1 npn and 1 pnp (bipolar)
Q60VR3AF2000/Q60VR3AFV1000	E/M relay (SPDT), NO & NC contacts
Load current	150 mA max. at 25 °C (Q60BB6... only) (Q60VR3... see 2nd page)
Switching frequency	250 Hz (Q60BB6...) 33 Hz (Q60VR3...)

Material

Housing	ABS polycarbonate blend
Lens	acrylic
Cover	clear ABS
Protection class (IEC 60529/EN 60529)	IP67

Temperature range	-20...+55 °C
Cable	2 m, PVC, 5 x 0,5 mm ²
Connector	eurocon (M12 x 1)
Indicator LEDs	see second page

Accessories

Brackets

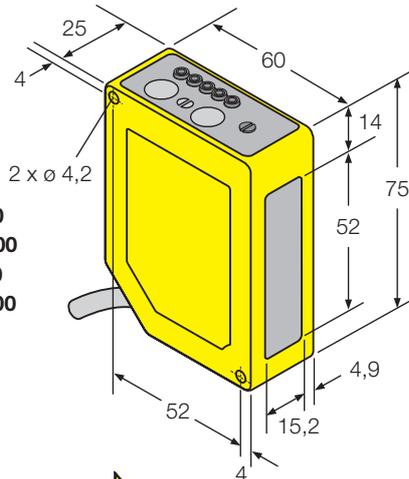
SMBQ60	30 675 92	mounting bracket
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Connectors (Q60BB6... only)

WAK4.5-2/P00	80 085 76	straight type
WWAK4.5-2/P00	80 085 83	right-angled type

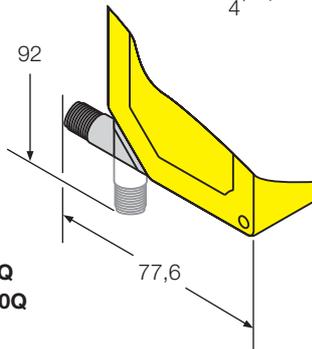
Dimensions [mm]

● Cable



Types: **Q60BB6AF2000**
Q60BB6AFV1000
Q60VR3AF2000
Q60VR3AFV1000

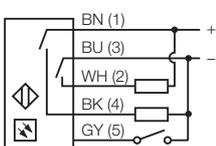
● Connector



Types: **Q60BB6AF2000Q**
Q60BB6AFV1000Q

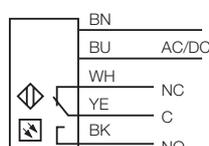
Wiring

Q60BB6AF2000(Q)
Q60BB6AFV1000(Q)



remote programming

Q60VR3AF2000
Q60VR3AFV1000

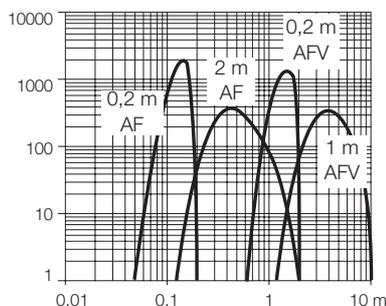


5 A max. load

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Excess gain curve:
Excess gain at cut-off point

Adjustable field

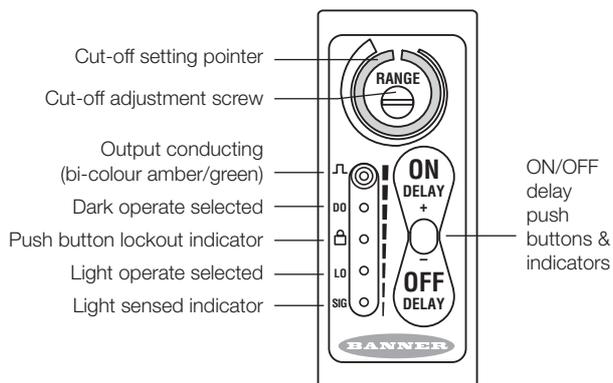


	Min. range (depending on cut-off point) [mm]	Cut-off point [mm]	Light source	Output function	Connection	Type	Ident number
	50...125	200...2000	IR	pnp, npn	cable	Q60BB6AF2000	30 630 00
	50...125	200...2000	IR	pnp, npn	connector	Q60BB6AF2000Q	30 630 01
	50...125	200...2000	IR	relay	cable	Q60VR3AF2000	30 630 04
	65...130	200...1000	red	pnp, npn	cable	Q60BB6AFV1000	30 700 92
	65...130	200...1000	red	pnp, npn	connector	Q60BB6AFV1000Q	30 700 93
	65...130	200...1000	red	relay	cable	Q60VR3AFV1000	30 700 94

Indicator LEDs

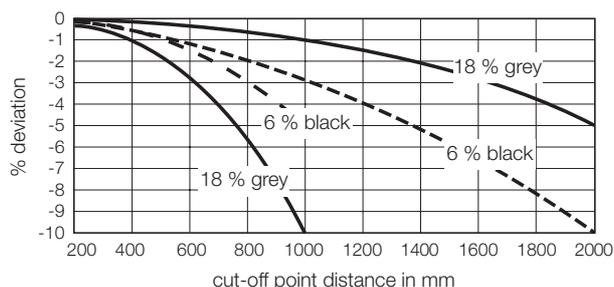
ON delay	green	RUN mode, ON delay active
	flashing green	ON delay selecting mode active
OFF delay	green	RUN mode, OFF delay active
	flashing green	OFF delay selecting mode active
5-segment light bar*		indicates relative delay time during ON or OFF delay selection modes
Output	amber	outputs conducting
	green	during ON/OFF delay selection modes
Dark operate	green	dark operate selected
Lockout	green	buttons are locked out
Light operate	green	light operate selected
Signal	green	sensor receives signal
	flashing green	marginal signal indication

* Output, dark operate, lockout, light operate and signal indicators function as a 5-segment light bar during ON or OFF delay selection modes



Interpretation of performance curves for adjustable field models

The percentage of deviation indicates a change in the cut-off point for either 18 % grey or 6 % black targets, relative to the cut-off point set for a 90 % reflective white test card.



Sensing Hysteresis (AF versions)

2000 mm cut-off: less than 3 % of set cut-off distance
1600 mm cut-off: less than 2,25 % of set cut-off distance
1200 mm cut-off: less than 1,30 % of set cut-off distance
800 mm cut-off: less than 0,5 % of set cut-off distance
400 mm cut-off: less than 0,25 % of set cut-off distance

Sensing Hysteresis (AFV versions)

1000 mm cut-off: less than 2 % of set cut-off distance
800 mm cut-off: less than 1,2 % of set cut-off distance
600 mm cut-off: less than 0,7 % of set cut-off distance
400 mm cut-off: less than 0,35 % of set cut-off distance
200 mm cut-off: less than 0,25 % of set cut-off distance

Output Ratings Q60VR3AF2000 & Q60VR3AF1000

Minimum voltage and current: 5 VDC, 10 mA
Mechanical life of relay: 50.000.000 operations
Electrical life of relay at full resistive load: 100.000 operations
Maximum switching power (resistive load): 1250 VA, 150 W
Maximum switching voltage (resistive load): 250 VAC, 125 VDC
Maximum switching current (resistive load): 5 A at 250 VAC, 5 A at 30 VDC derated to 200 mA at 125 VDC

☞ *Setting the cut off distance adjustment screw to its maximum clockwise position places the receiver lens directly in front of the receiver elements and results in the Q60 performing as a long-range diffuse sensor.*

Subject to changes without notice • Edition Revision 11.02 • P/N ED074



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.