QF series

Metallic cubic miniaturized photoelectric sensors
For harsh environments or food and beverage applications

features

- **AISI 316L Stainless steel housing**
- **IP67-IP68-IP69K protection degree**
- **Totally protected against electrical damages**
- **Complementary outputs (NO + NC)**
- **CE e cULus listed approval**



web content

- **Application notes**
- **Photos**
- **Catalogue / Manuals**

IP69K ECOLAB c UL us CE

code description

QF R N / B P - 1 F

series	QF	Metallic cubic miniaturized photoelectric sensors for harsh environments or food and beverage applications
emission	I	Infrared emission
	R	Red emission
model	4	Direct reflection 200 mm (wide spot)
	8	Direct reflection 1000 mm
	S	Background suppression
	N	Polarized
	H	Emitter
	D	Receiver
output	0	Emitter
	B	Complementary outputs (NO + NC)
logic output	N	NPN logic output
	P	PNP logic output
housing	1	Stainless steel AISI 316L
connection	A	Cable (length 2m)
	F	Plug M8 4 poles

MEDITECNA
Instrumentación | Proyectos | Servicios

available models

model	distance	emission	adjustment	housing	cable		plug M8	
					NPN (NO+NC)	PNP (NO+NC)	NPN (NO+NC)	PNP (NO+NC)
diffuse reflection	200 mm	infrared	●	metallic	QFI4/BN-1A	QFI4/BP-1A	QFI4/BN-1F	QFI4/BP-1F
	1000 mm	red			QFR8/BN-1A	QFR8/BP-1A	QFR8/BN-1F	QFR8/BP-1F
background suppression	200 mm				QFRS/BN-1A	QFRS/BP-1A	QFRS/BN-1F	QFRS/BP-1F
polarized	6 m				QFRN/BN-1A	QFRN/BP-1A	QFRN/BN-1F	QFRN/BP-1F
emetter	15 m	infrared	-		QFIH/00-1A	-	QFIH/00-1F	-
riceiver	15 m		●		QFID/BN-1A	QFID/BP-1A	QFID/BN-1F	QFID/BP-1F

technical specification

	diffuse reflection		background suppression	polarized	emitter	receiver
	QFI4/B*-1*	QFR8/B*-1*	QFRS/B*-1*	QFRN/B*-1*	QFIH/00-1*	QFID/B*-1*
						
nominal sensing distance (Sn)	200 mm (wide angle)	1 m	25…200 mm	6 m	15 m	
scanning adjustment range (Sr)	20…200 mm	0,1..1 m	25…200 mm	1,7...6 m	-	-
hysteresis	≤ 20%		≤ 10%	≤ 20%	-	≤ 20%
emission	Infrared (850 nm)	Red (617 nm)		Red (625 nm)	Infrared(850 nm)	-
supply voltage	10…30Vdc					
ripple	≤ 10%					
no-load supply current	≤ 25 mA		≤ 40 mA	≤ 25 mA		≤ 20 mA
load current	≤ 100 mA					
leakage current	100 µA					
output voltage drop	2 Vdc @ 100 mA					
output type	PNP or NPN (NO + NC)			PNP or NPN (NO + NC)		PNP or NPN (NO + NC)
switching frequency	1 kHz		500 Hz	1 kHz		500 Hz
power on delay	30 ms			30ms	30ms	200ms
operating temperature range	-25°C…+60°C (without freeze)					
power supply protection	polarity reversal, transient					
output electrical protection	short circuit (auto reset)				-	short circuit (auto reset)
sensing adjustment	Trimmer (210°)			Trimmer (210°)	-	Trimmer (210°)
protection degree	IP68, IP69K					
EMC	conformity with the EMC directive according to EN 60947-5-2					
exsternal light interference	≤ 10.000 lux			≤ 10.000 lux		≤ 10.000 lux
housing material	Stainless steel AISI 316L					
optical material	PPSU					
weight (approximate)	≤ 100gr (cable); ≤ 65gr (plug)					

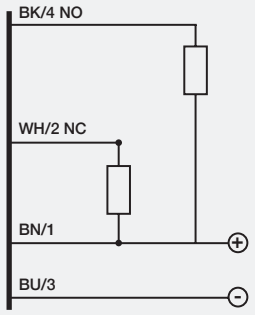
LEDs

Green LED	Yellow LED	Supply Voltage	Output
ON	OFF	ON	OFF (stable)*
OFF	OFF	ON or OFF	OFF
OFF	ON	ON	ON
OFF	ON	ON	ON (stable)*

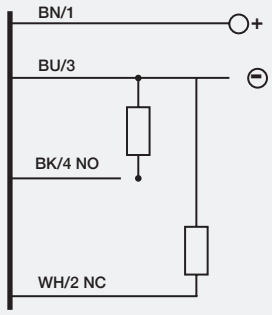
Emitter			
Green LED	-	Power	-
ON	-	ON	-

electrical diagrams of the connections

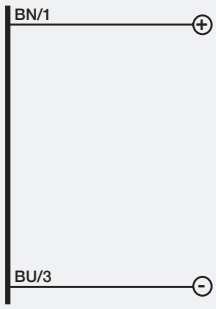
PNP output



NPN output



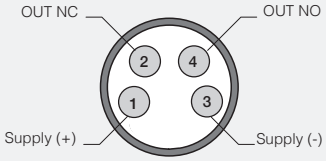
emitter



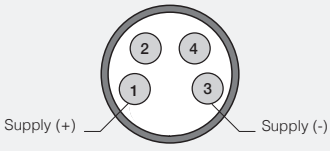
BN	brown
BU	blue
BK	black
WH	white
PK	pink
GY	gray

plug

QF**/B*-1F



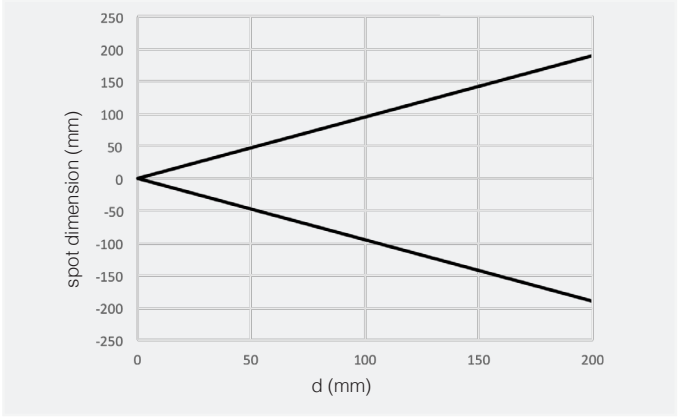
QFIH/00-1F



response diagrams

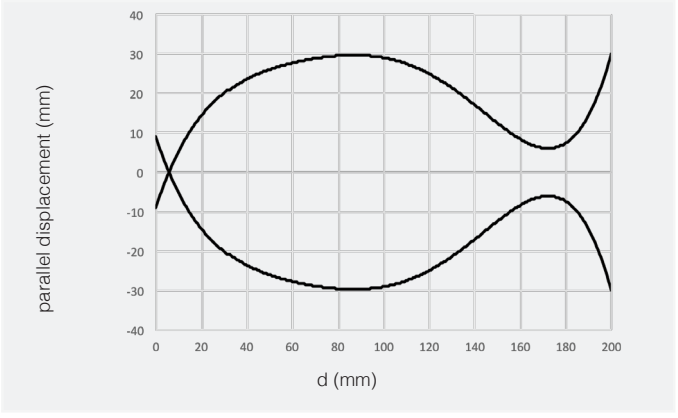
direct reflection models

QFR4 spot dimension

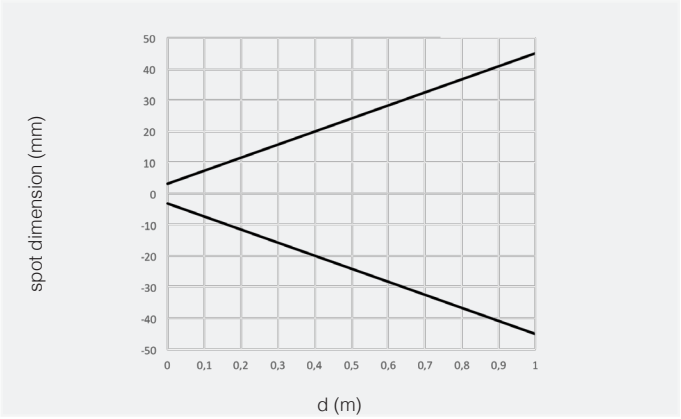


White 90%	0….200 mm
Gray 18%	5….105 mm
Black 6%	10….55 mm

QFR4 parallel displacement

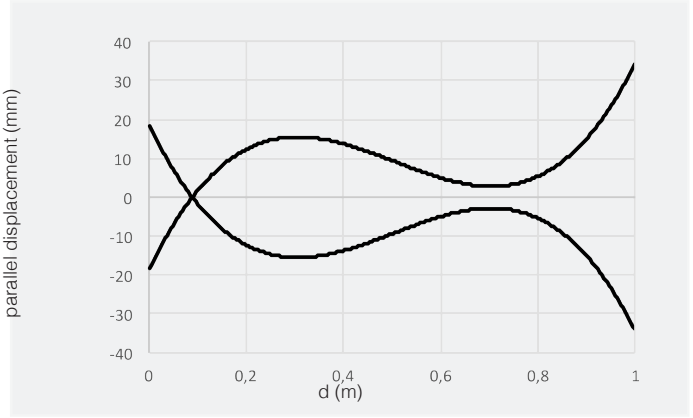


QFR8 spot dimension



White 90%	1…1,000 mm
Gray 18%	5…500 mm
Black 6%	10…300 mm

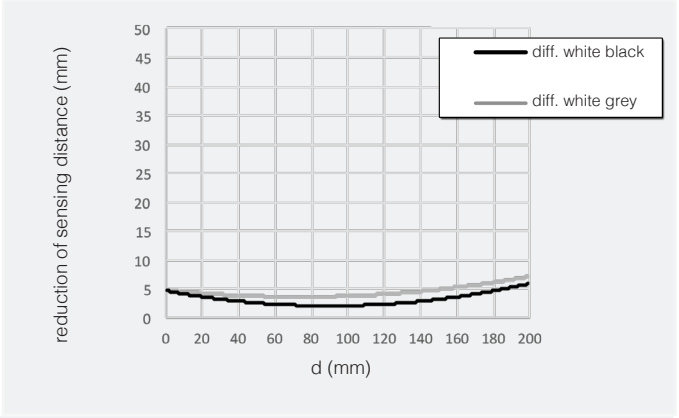
QFR8 parallel displacement



response diagrams

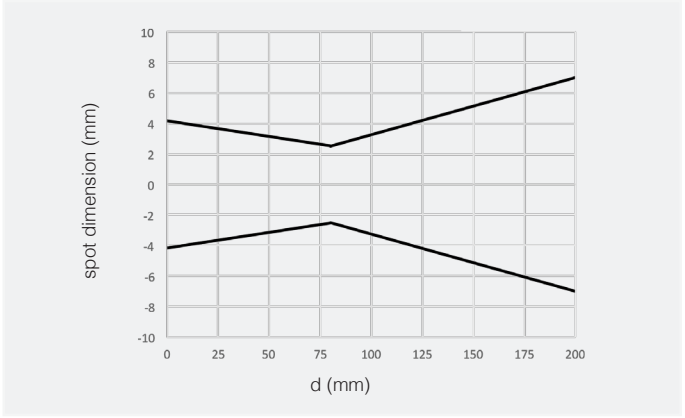
background suppression models

QFRS reduction of sensong distance



Bianco 90%	10..200 mm
Grigio 18%	13..200 mm
Nero 6%	15..200 mm

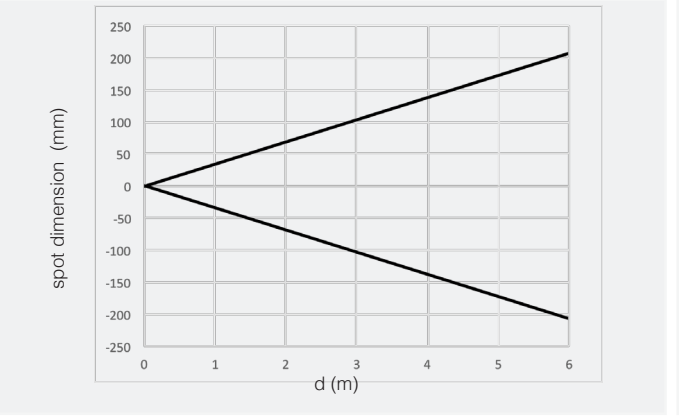
QFRS spot dimension



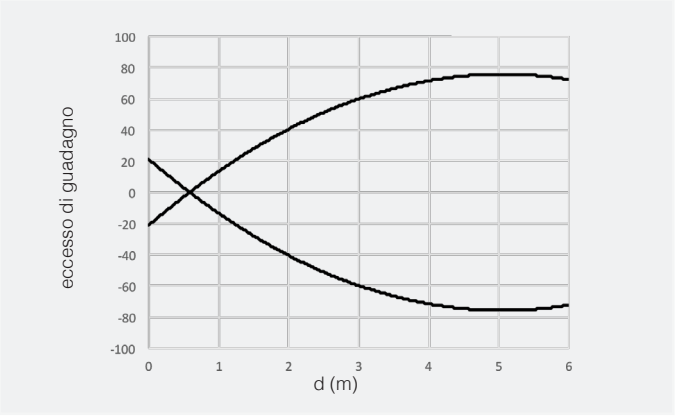
response diagrams

polarized models

QFRN spot dimension



QFRN parallel displacement

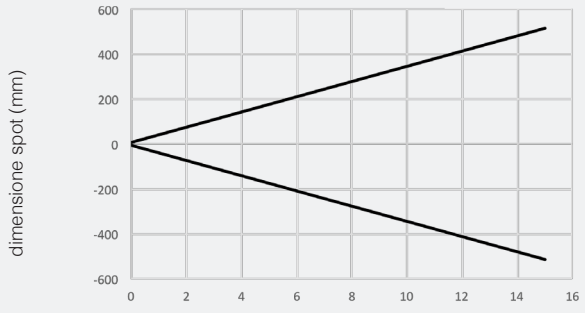


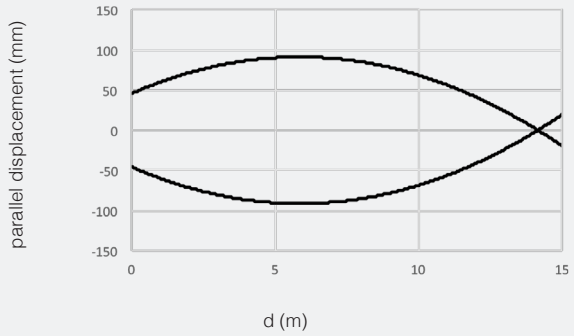
	ExG2 [m]	ExG1 [m]	minimum distance [mm]
RL110	6	7	100
RL113G	3,3	3,4	100
RL116	1,8	2,1	110

response diagrams

through-beam models

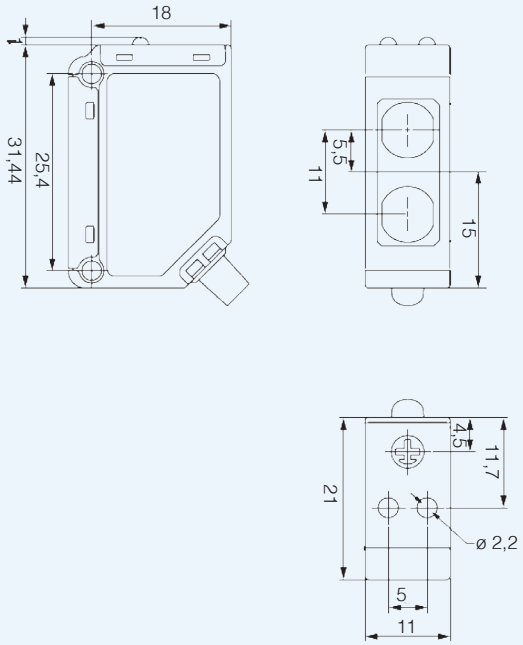
QFI* spot dimension	QFI* parallel displacement

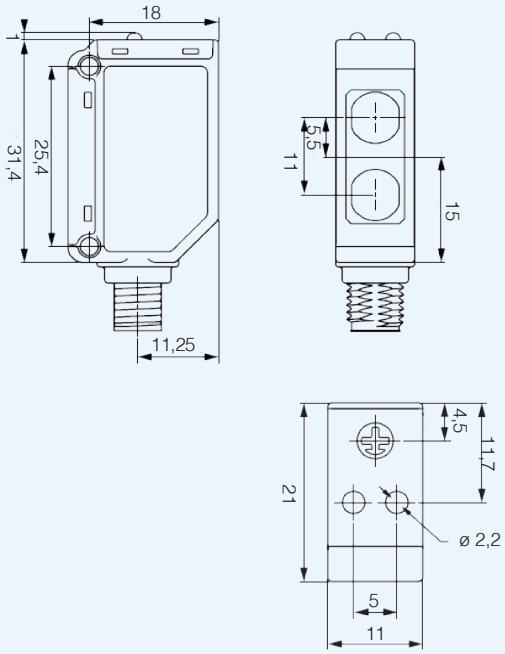




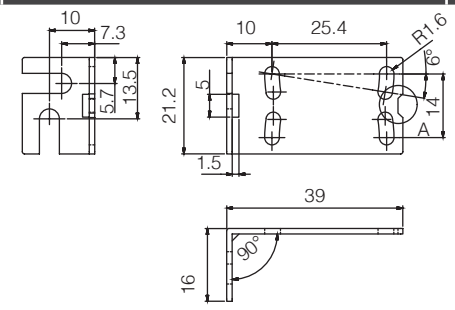
dimensions (mm)

cable models	plug models





accessories

ST 105			
product	suitable for	dimensions (mm)	description / installation
	QF sensors		galvanized stainless steel AISI 304