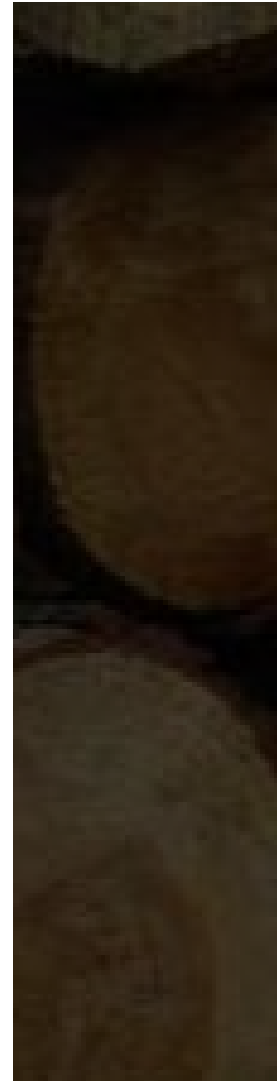




Micro Detectors

Italian Sensors Technology



FG Cubic Photoelectric Sensor



Photoelectric Sensors
Catalogue

Cod. CAT3EFG1261301

Catalogue FG - english - Ed.01/2013





Products

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cubic

Series **FG**

Cubic

www.microdetectors.com

Industries and applications

automatic doors and gates
wood industry
logistic and automatic warehouse
packaging industry
automotive industry



Main Features

Compact Rectangular photoelectric switch characterized by high performances and high detection distances

Cable output or with revolving connector, NPN or PNP output (DC models) and SPDT voltage free relay output (AC models)

Selectable LO/DO output status

Totally protected against electrical damages

Background suppressions models: 310mm, 600 mm

Reflex polarized sensitivity adjustment 12 m

Emitter and Receiver with max detecting range of 50 m

Sensitive adjustment models

Double Multifunction LED indicator: output state and using the pointing

Certifications



Protection degree

IP67





Products

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FG Cubic Photoelectric Sensor

FG Cubic Photoelectric Sensor range is composed by **two different types of Background Suppression** with detecting distances of 600 mm, polarized retroreflective (12m) and the barriers version (Emitter-Receiver 50m).

Its **small dimensions**, **M12 rotatable connector** or **pigtail** with which the sensor is equipped, allow the **installment of the product in very small spaces**.

The highly visible Led allows **easy alignments**, ensuring a **bigger safety application in adverse environments**.

However, the product has a **low sensitive in presence of dirt or dust** on the optical lens.

Pack Content

Installation manual (English + Italian): CAT8BFG1260501

ST82 knob regulation accessory for the models with sensitive adjustment

N° 1 mounting bracket + N° 2 screw with bolts and washers

N° 2 mounting bracket + N° 4 screw with bolts and washers, only for FGRHD/**-**

N° 1 RL 123 reflex, only for FGRN/**-**

Product packed in bags

further commercial and technical documents available

High resolution pictures

customization already tested

-

minimum quantity that can be ordered

1 pcs

		FG	R	W	/	0	P	-	0	A
FG	Compact cubit photoelectric switch									
R	Visible red emission LED									
W	Adjut. dist. background suppression 600 mm									
S	Adjust. dist background suppression 310 mm									
N	Reflex polarized sensitivity adjustment 12 m									
H	Emitter 50 m									
D	Receiver with sensitivity adjustment 50 m									
HD	Emitter + Receiver with sensitivity adjustment									
0	Supply voltage 10...30V cc/dc									
D	Supply voltage 24...24V cc/dc / 24...240V ca/ac									
P	PNP logic output									
N	NPN logic output									
0	Emitter									
T	SPDT voltage free relay output									
0	Plastic ousing									
A	Cable exit									
E	M12 plug cable exit									

available models

model	distance	adjustment	cable		M12 plug		AC models
			NPN	PNP	NPN	PNP	
Background suppression	310 mm	yes	FGRS/0N-0A	FGRS/0P-0A	FGRS/0N-0E	FGRS/0P-0E	FGRS/DT-0A
	600 mm		FGRW/0N-0A	FGRW/0P-0A	FGRW/0N-0E	FGRW/0P-0E	FGRW/DT-0A
polarized	12 m		FGRN/0N-0A	FGRN/0P-0A	FGRN/0N-0E	FGRN/0P-0E	FGRN/DT-0A
emitter + receiver	50 m		FGRHD/0N-0A	FGRHD/0P-0A	FGRHD/0N-0E	FGRHD/0P-0E	FGRHD/DT-0A

3 class models: 3 class models can be subject to delays in delivery terms or limits for the quantities to be ordered.



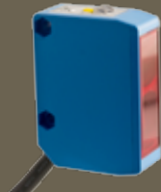
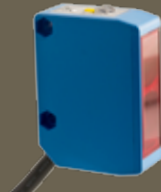
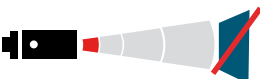
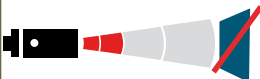
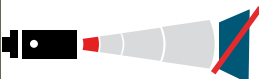
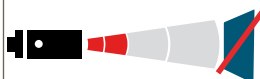


Products

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specifications (background suppression models)


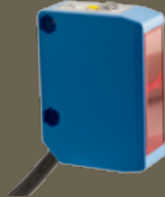


according to IEC EN 60947-5-2 and IEC EN 60947-5-7

				
models	FGRS/0*-0*	FGRW/0*-0*	FGRS/DT-0A	FGRW/DT-0A
				
Function	background suppression			
Sensing distance mm	90 ÷ 310 mm	110 ÷ 600 mm	90 ÷ 310 mm	110 ÷ 600 mm
Blind zone mm	5 ÷ 15 mm	10 ÷ 35 mm	5 ÷ 15 mm	10 ÷ 35 mm
Scanning distance adjusting	potentiometer 2 turns with position indicator			
emissione	red visible LED light			
Spot diameter	30 mm @ 300 mm	30 mm @ 500 mm	30 mm @ 300 mm	30 mm @ 500 mm
Light on-Dark on select.	control wire		light on	
Supply voltage	10 ÷ 30 Vcc (limit value)		24 ÷ 240 Vca ⁽²⁾ / 24 ÷ 240 Vcc	
Ripple	5 Vpp		-	
No load supply current	≤ 35 mA		≤ 2 VA	
Load current max	100 mA		-	
Output voltage drop	1.8 V max @ 100 mA		-	
Max output switching current	-		3 A ÷ 240 Vca ⁽²⁾ 3 A ÷ 30 Vcc ⁽²⁾	
Output type	PNP or NPN open collector		relay SPDT electrically isolated	
Switching frequency	160 Hz max		33 Hz max	
Response time	2 ms		15 ms	
Supply electrical protections	overvoltage pulses and polarity reversal			
Output electrical protection	short circuit, overcurrent, overvoltage		-	
Operation temperature range	- 25 ...+ 55° C			
Ambient light immunity	10,000 Lux minimum sunlight 3,000 Lux min HF lamp			
Enclosure rating	IP67 (EN60529) ⁽³⁾			
Housing material	Housing: ABS; optic: PMMA			
Cable PVC 2m	4 x 0.18 mmq, ø 3.8 mm		5 x 0.76 mmq, ø 6.3 mm	
Weight approx	150 g cable 40 g plug		160 g	

⁽¹⁾ white target 90% 100x100 mm⁽²⁾ ensure spark extinguishing for inductive or capacitive load⁽³⁾ protection guaranteed only with plug cable well mounted

specifications (reflex polarized models)

according to IEC EN 60947-5-2 and IEC EN 60947-5-7

		
models	FGRN/0*-0*	FGRN/DT-0A
		
Function	reflex polarized models	
Sensing distance mm	12 m	
Blind zone mm	0,01 m	
Scanning distance adjusting	potentiometer 2 turns with position indicator	
emissione	red visible LED light	
Spot diameter	approx. 260 mm @ 8 m	
Light on-Dark on select.	control wire	light on
Supply voltage	10 ÷ 30 Vcc (limit value)	24 ÷ 240 Vca ⁽²⁾ / 24 ÷ 240 Vcc
Ripple	5 Vpp	-
No load supply current	35 mA	≤ 2 VA
Load current max	100 mA	-
Output voltage drop	1.8 V max @ 100 mA	-
Max output switching current	-	3 A ÷ 240 Vca ⁽²⁾ 3 A ÷ 30 Vcc ⁽²⁾
Output type	PNP or NPN open collector	relay SPDT electrically isolated
Switching frequency	1,000 Hz max	33 Hz max
Response time	0,15 ms	15 ms
Supply electrical protections	overvoltage pulses and polarity reversal	
Output electrical protection	short circuit, overcurrent, overvoltage	-
Operation temperature range	- 25 ...+ 55° C	
Ambient light immunity	10,000 Lux minimum sunlight 3,000 Lux min HF lamp	
Enclosure rating	IP67 (EN60529) ⁽³⁾	
Housing material	Housing: ABS; optic: PMMA	
Cable PVC 2m	4 x 0,18 mmq, ø 3,8 mm	5 x 0,76 mmq, ø 6,3 mm
Weight approx	150 g cable 40 g plug	160 g

⁽¹⁾ with RL 123 included reflector

⁽²⁾ ensure spark extinguishing for inductive or capacitive load

⁽³⁾ protection guaranteed only with plug cable well mounted



Products

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specifications (through-beam models)

according to IEC EN 60947-5-2 and IEC EN 60947-5-7

				
	FGRHD/0*-0*		FGRHD/DT-0A	
models	FGRH/0*-0*	FGRD/0*-0*	FGRH/D0-0A	FGRD/DT-0A
	   			
Function	emitter		receiver	
Sensing distance mm	50 m			
Blind zone mm	potentiometer 2 turns with position indicator			
Scanning distance adjusting	Red LED light	-	Red LED light	-
emission	600 mm @ 20 m	-	600 mm @ 20 m	-
Spot diameter	-	control wire	-	light on
Light on-Dark on select.	10 ÷ 30 Vcc (limit value)		24 ÷ 240 Vca ⁽²⁾ / 24 ÷ 240 Vcc	
Supply voltage	5 Vpp		-	
Ripple	≤ 35 mA	≤ 20 mA	≤ 20 mA	≤ 2 mA
No load supply current	-	100 mA	-	
Load current max	-	1,8 V max @ 100 mA	-	
Output voltage drop	-			3 A ÷ 240 Vca ⁽²⁾ 3 A ÷ 30 Vcc ⁽²⁾
Max output switching current	-	PNP or NPN open collector	-	relay SPDT electrically isolated
Output type	-	1,000 Hz max	-	33 Hz max
Switching frequency	-	0,5 ms	-	≤ 15 ms
Response time	overvoltage pulses and polarity reversal			
Supply electrical protections	-	short circuit, overcurrent, overvoltage	-	
Output electrical protection	- 25 ...+ 55° C			
Operation temperature range	10,000 Lux minimum sunlight 3,000 Lux min HF lamp			
Ambient light immunity	IP67 (EN60529) ⁽³⁾			
Enclosure rating	Housing: ABS; optic: PMMA			
Housing material	2 x 0.18 mmq, ø 3.8 mm	4 x 0.18 mmq, ø 3.8 mm	2 x 0.76 mmq, ø 6.3 mm	5 x 0.76 mmq, ø 6.3 mm
Cable PVC 2m	80 g plug M12 300 g cable 2m		310 g	

⁽²⁾ ensure spark extinguishing for inductive or capacitive load

⁽³⁾ protection guaranteed only with plug cable well mounted

BN	brown
BU	blue
BK	black
WH	white

electric diagrams of the connections

M12

FGRS/0*-0E

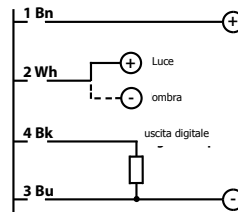
FGRW/0*-0E

FGRD/0*-0E

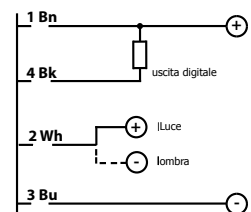
FGRN/0*-0E

FGRH/00-0E

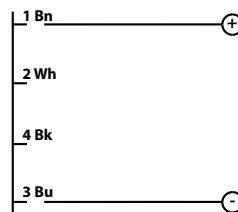
Background suppression, polarized, receiver
PNP output



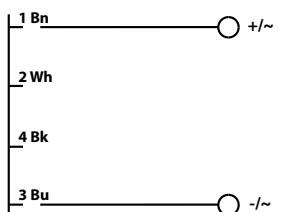
Background suppression, polarized, receiver
NPN output



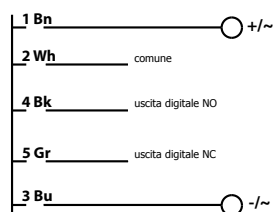
EmitterDC



Emitter AC/DC



Background suppression, reflex with polarizing
giltter and receiver with relay output



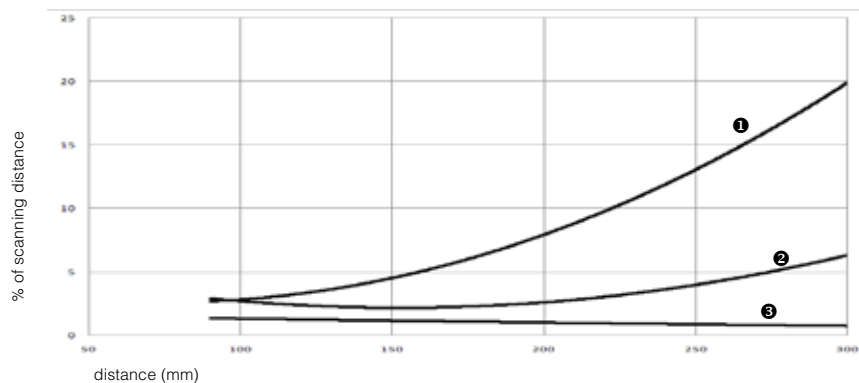


Products

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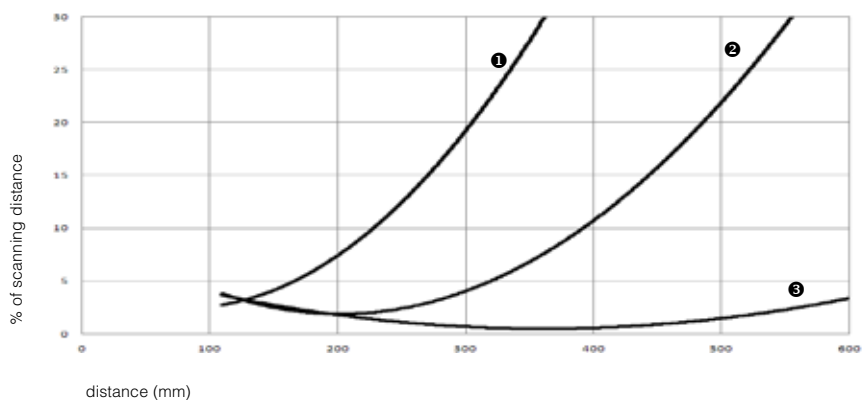
response diagram

FGRS/**_**



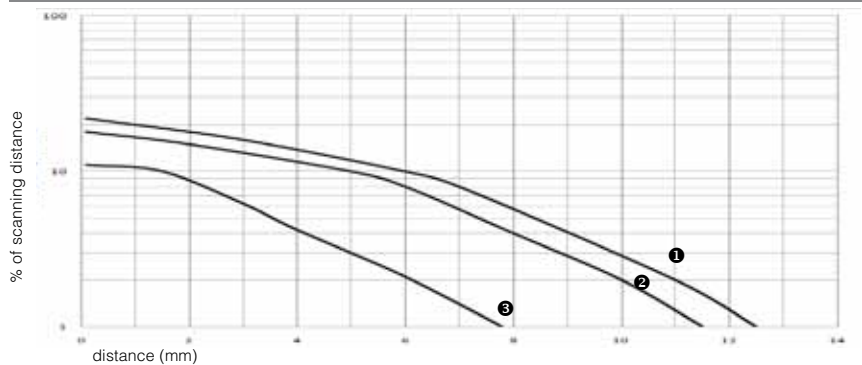
- | | |
|---|---|
| 1 | scanning range on black (6%) with background (90%) |
| 2 | scanning range on gray (18%) with background (90%) |
| 3 | scanning range on white (90%) with background (90%) |

FGRW/**_**



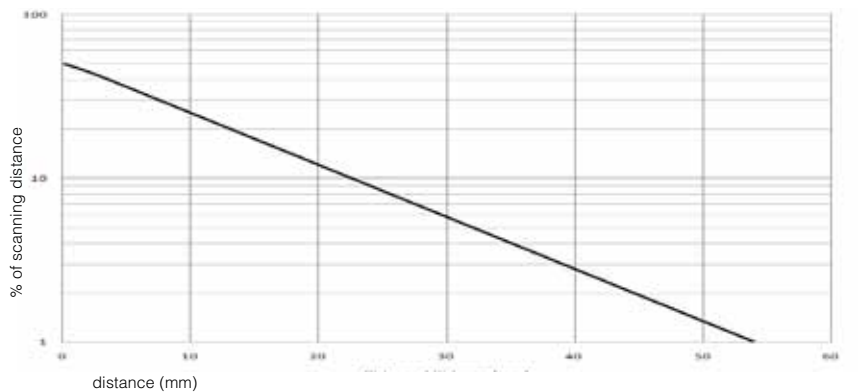
- | | |
|---|---|
| 1 | scanning range on black (6%) with background (90%) |
| 2 | scanning range on gray (18%) with background (90%) |
| 3 | scanning range on white (90%) with background (90%) |

FGRN/**_**

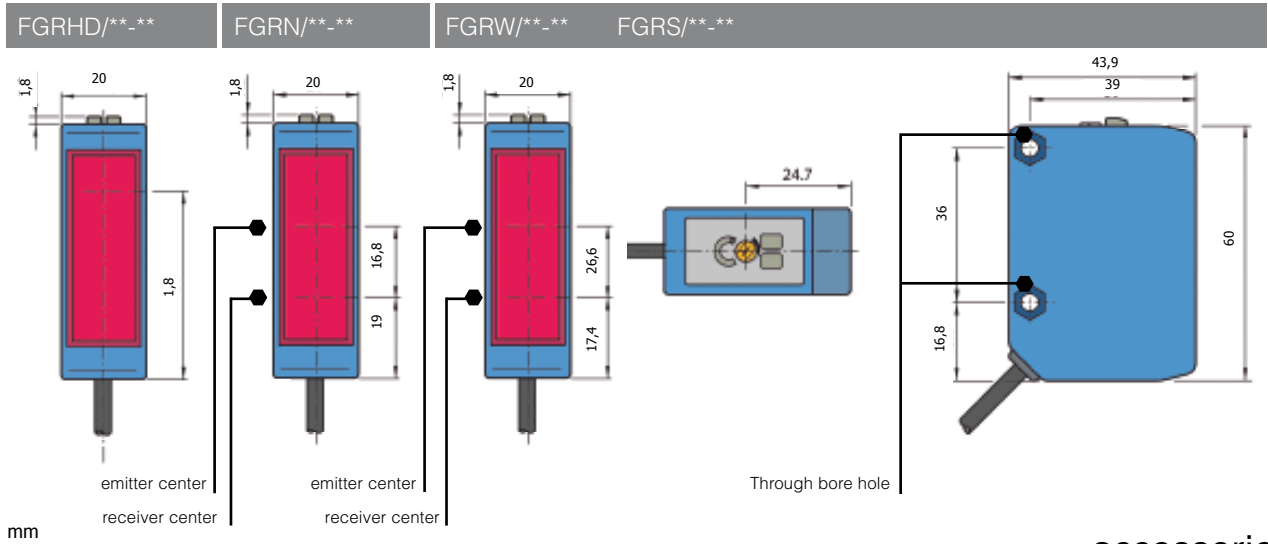
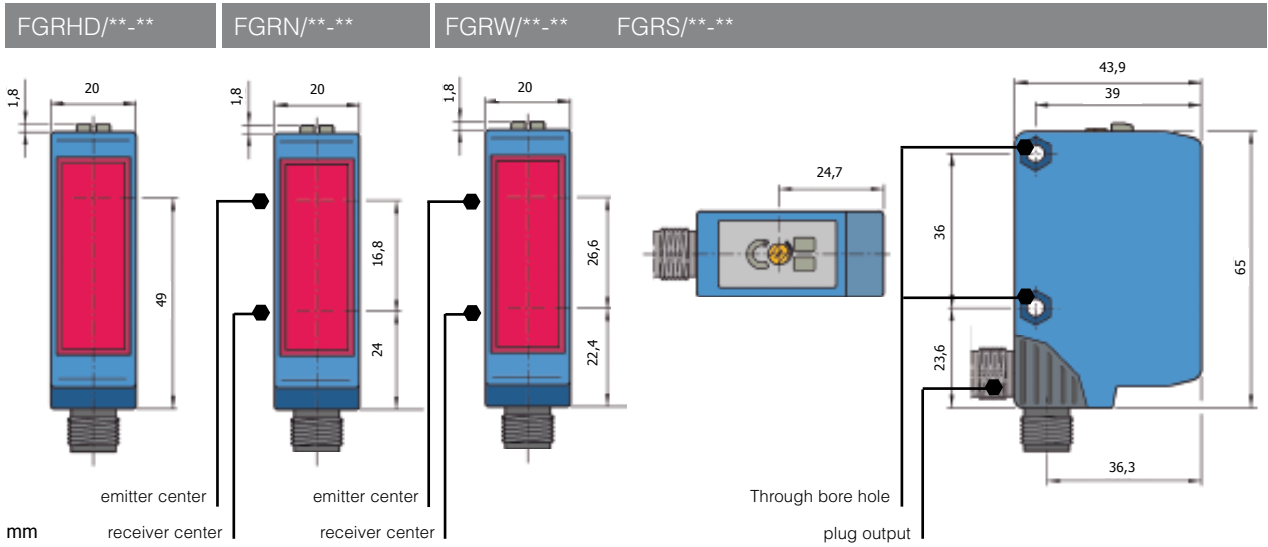


- | | |
|---|--|
| 1 | performance obtained with RL113G reflector |
| 2 | performance obtained with RL116 reflector |
| 3 | performance obtained with RL112G reflector |

FGRHD/**_**

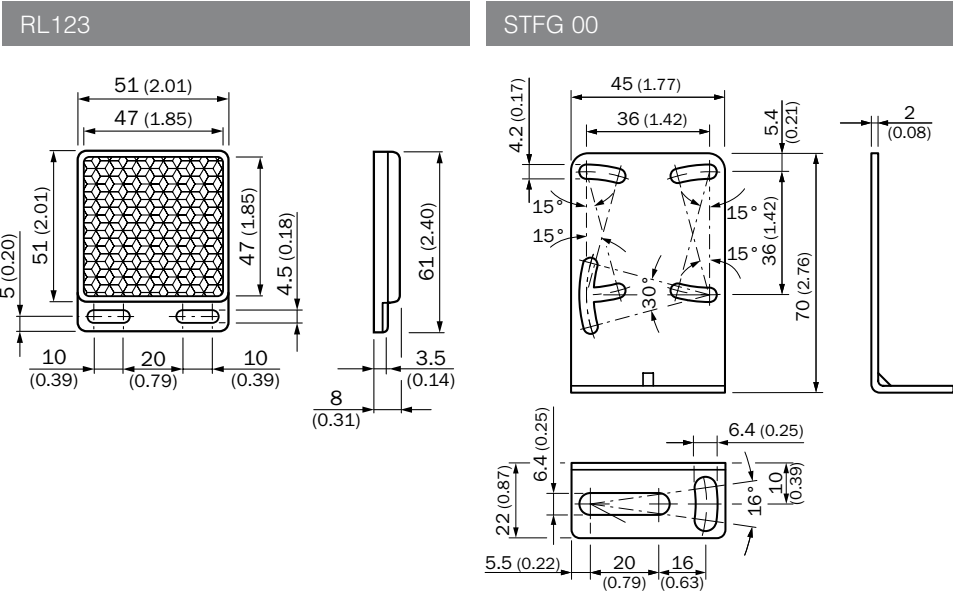


dimensions



accessories

Code	description
RL 123	Reflector 51.6 x 61.6 mm supplied with FGRN model
STFG 00	Mounting bracket supplied with FG models





Catalogue
Photoelectric Sensors



CAT3EFG1261301 CATALOGUE CUBIC PHOTOELECTRIC SENSOR FG ENG ED.01/2012

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