



Micro Detectors

Italian Sensors Technology



Application book
Construction and
Agricultural machines

Ultrasonic &
Inductive Sensors



Ultrasonic & Proximity Sensors
Catalogue

Cod. CAT3E001269501

Application book - Ultrasonic & Inductive Sensors - English - Ed.01/2013





application book

ultrasonic & inductive
cylindrical & cubic

Series

**Ultrasonic: M18 with Teach-in button,
M18 short housing, M30**

**Inductive: Miniaturized, Standard,
DECOUT[®], IP68, Cubic**

ultrasonic & inductive cylindrical & cubic



www.microdetectors.com



applications

- asphalt level inside the tank and ground
- asphalt deposit thickness detection
- vehicle speed/operation time detection
- balers correct functioning detection
- limit position and arm extension detection
in stabilizers
- dumper position detection in trucks with tipper
- rotating cab, arm, stabilizer detection in agricultural and
construction machines
- positioning of the sprayer in agricultural machines
- cap position detection



features

Special logic output: NPN+PNP / NO-NC selectable (inductive)

Special supply voltage 10...50Vdc to be used with battery supply voltage (inductive)

Special cables to be used at low temperature (up to -40°C)

Different mechanical housings to fit with the customer needs

Analogue output: 0-10 V and 4-20 mA (ultrasonic)

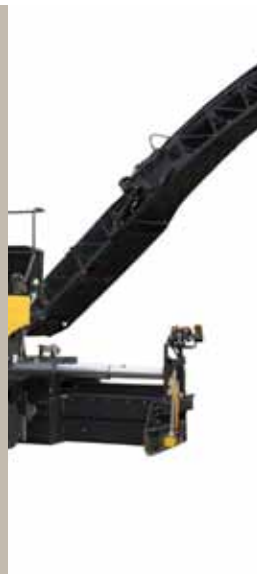
Voltage supply 12...30 Vdc to be used with battery supply voltage (M30 ultrasonic)

approvals



protection degree

IP67, IP68





application book

ultrasonic & inductive
cylindrical & cubicM18 with
Teach-in

UK1

Short
housing

UK6

M30

UT1



asphalt level inside the tank and ground asphalt deposit thickness detection

It is necessary to use sensors that can operate outdoor to detect the asphalt independently from color and coarseness.

applied solution

Ultrasonic sensors are able to detect the level and thickness of the asphalt. The sensors are IP67 and completely filled of resin, so they can be used outdoor and in presence of vibrations.



vehicle speed / operation time

Vehicle speed/operation time detection

applied solution

Inductive sensors on the driving wheels can detect the teeth of a gear wheel.



Miniaturized

PA

PB

PC

PD

PP

PH

PE

Standard

AH

AE

AM

AK

AT

DECOUT®

PM3

PK3

IP68

PMS

PMW

PKS

PKW

Cubic

IL





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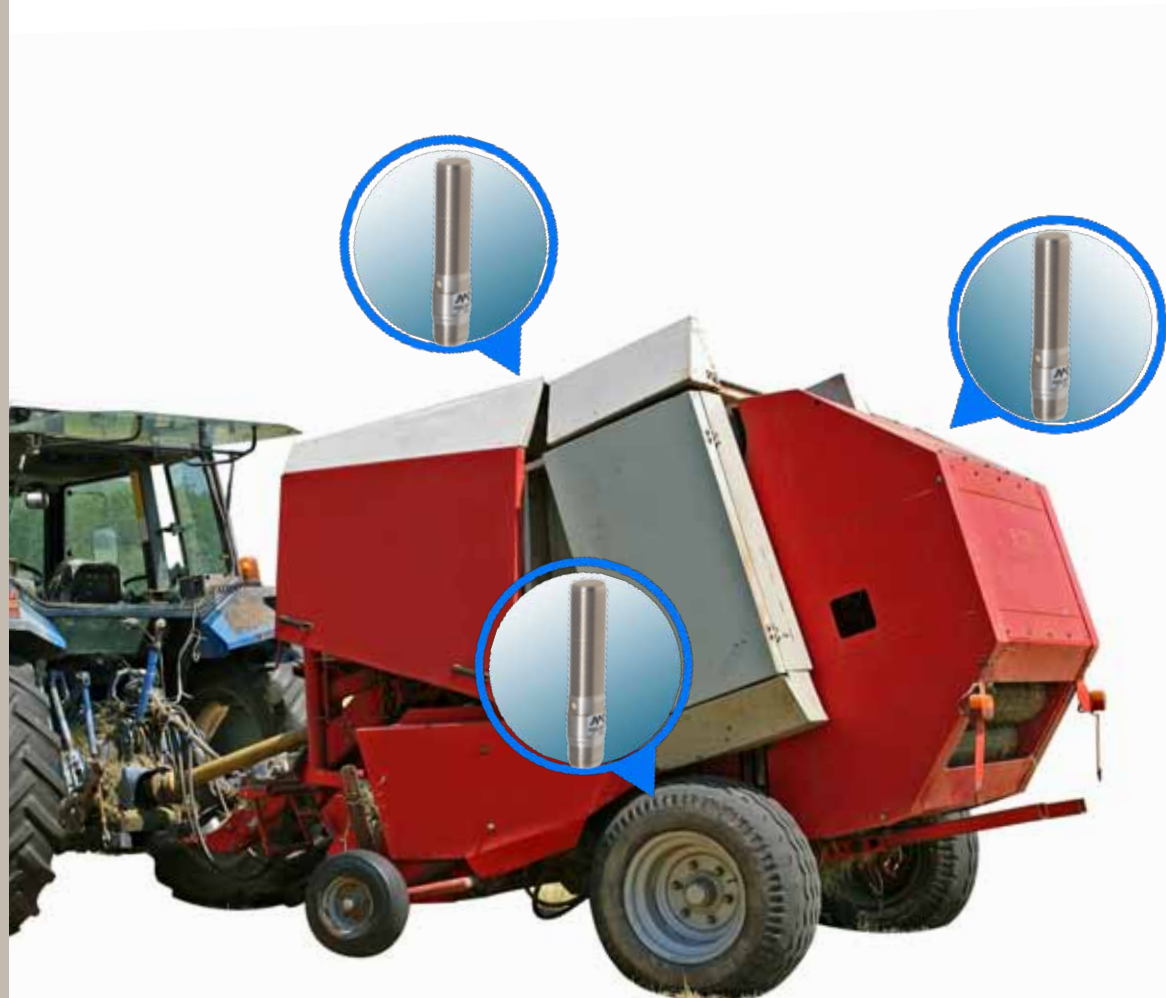
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balers machines correct functioning detection

It is necessary to detect if the machine is operating in the correct way.

applied solution

Inductive sensors are used to detect on wheel - speed and distance if the baler is open or closed rotation of belts and rolls.



limit position and arm extension detection in stabilizers

It is necessary to control the mechanical movements of the robotic arm and to avoid damages and to operate in a safe way.

applied solution

Inductive normally closed sensors are used to detect the limit positions of the hydraulic arms. Ultrasonic sensors are used to measure the extension of the stabilizers to adapt its position to the load lifted.



M18 with Teach-in

UK1

Short housing

AH

M30

UT1



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dumper position detection in trucks with tipper

It is necessary to use a sensor that can operate outdoor even in presence of dust, oil or water drops.

applied solution

Inductive sensors are able to detect the metallic targets that indicate if the tipper is in the correct position. Special inductive models are able to work with: extended supply voltage range 10...50 Vdc and extended load current up to 400mA to supply directly loads as lamps.



rotating cab, arm, stabilizer detection in agricultural vehicles

It is necessary to use a sensor that can operate outdoor even in presence of dust, oil or water drops.

applied solution

Inductive sensors are able to detect the metallic targets that indicate the position of cab, stabilizer, arm. Special inductive models are able to work with: extended supply voltage range 10...50 Vdc and extended load current up to 400mA to supply directly loads as lamps.



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application book

ultrasonici e induttivi
cilindrici e cubici

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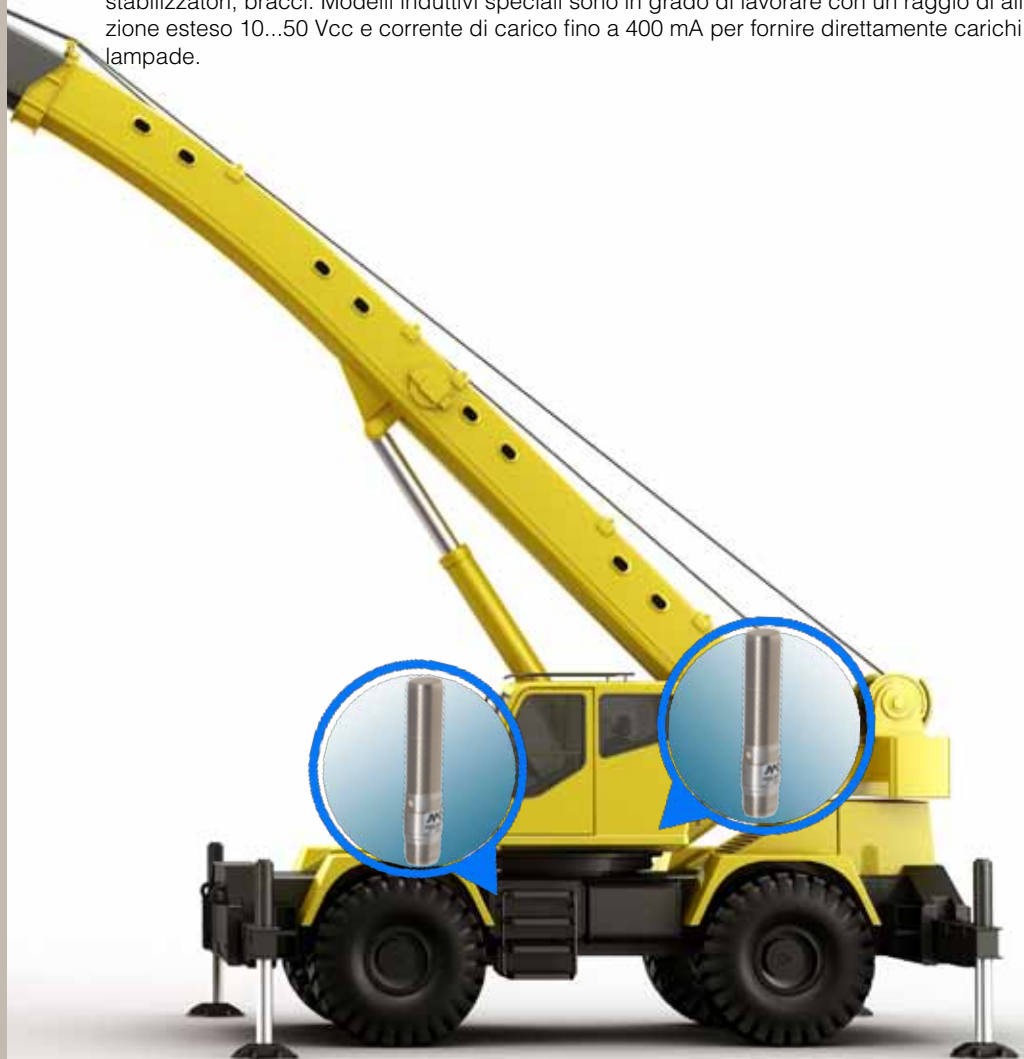
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rilevamento posizione

E' necessario utilizzare un sensore in grado di operare in ambiente esterno anche in presenza di polveri, olio o gocce d'acqua..

soluzione applicata

I sensori induttivi sono in grado di rilevare gli obiettivi metallici che indicano la posizione di cabina, stabilizzatori, bracci. Modelli induttivi speciali sono in grado di lavorare con un raggio di alimentazione esteso 10...50 Vcc e corrente di carico fino a 400 mA per fornire direttamente carichi come lampade.





Ultrasonic Sensors

M18 with Teach-in button



		UK1A	UK1C	UK1D	UK1F
dimensions		M18	M18	M18	M18
direct diffuse		50...400 mm	100...900 mm	150...1,600 mm	200...2,200 mm
retroreflective		—	—	—	—
through beam		—	—	—	—
power supply	Vdc	●	●	●	●
	Vac	—	—	—	—
output type	PNP - NO and NC	—	—	—	—
	NPN - NO and NC	—	—	—	—
	2 x PNP with hysteresis function	Teach-in button	Teach-in button	Teach-in button	Teach-in button
	2 x NPN with hysteresis function	Teach-in button	Teach-in button	Teach-in button	Teach-in button
	PNP - NO / NC	Teach-in button	Teach-in button	Teach-in button	Teach-in button
	NPN - NO / NC	Teach-in button	Teach-in button	Teach-in button	Teach-in button
	0...10 V	Teach-in button	Teach-in button	Teach-in button	Teach-in button
	4...20 mA	Teach-in button	Teach-in button	Teach-in button	Teach-in button
	2 x PNP - NO / NC	Teach-in button	Teach-in button	Teach-in button	Teach-in button
	2 x NPN - NO / NC	Teach-in button	Teach-in button	Teach-in button	Teach-in button
1 x PNP - NO / NC + 1x 0...10 V	Teach-in button	Teach-in button	Teach-in button	Teach-in button	
1 x NPN - NO / NC + 1x 0...10 V	Teach-in button	Teach-in button	Teach-in button	Teach-in button	
1 x PNP - NO / NC + 4...20 mA	Teach-in button	Teach-in button	Teach-in button	Teach-in button	
1 x NPN - NO / NC + 4...20 mA	Teach-in button	Teach-in button	Teach-in button	Teach-in button	
temperature range		-20°C...+60°C	-20°C...+60°C	-20°C...+70°C (-20°C...+60°C cULus models)	-20°C...+70°C (-20°C...+60°C cULus models)
protection degree		IP67	IP67	IP67	IP67
housing material		PBT	PBT	PBT	PBT
front-end material		epoxy glass resin	epoxy glass resin	epoxy glass resin	epoxy glass resin
output	cable	●	●	●	●
	M12 plug	●	●	●	●
	M12 pig-tail	—	—	—	—
ATEX		I13GD (only PNP and connector exit)	I13GD (only PNP and connector exit)	I13GD (only PNP and connector exit)	I13GD (only PNP and connector exit)
other certifications					



application book

ultrasonici e induttivi
cilindrici e cubici

Ultrasonic Sensors

M18 short housing

UK6A

New series
ATEXNew reduced
blind zone

UK6B

New series
ATEX

UK6C

New series
cULus &
ATEX

dimensions		M18 - short housing	M18 - short housing	M18 - short housing
direct diffuse		30...300 mm	100...300 mm	150...900 mm
retroreflective		—	—	—
through beam		—	—	—
power supply	Vdc	●	●	●
	Vac	—	—	—
output type	PNP - NO and NC	—	—	—
	NPN - NO and NC	—	—	—
	2 x PNP with hysteresis function	—	—	—
	2 x NPN with hysteresis function	—	—	—
	PNP - NO / NC	Teach-in cable	Teach-in cable	Teach-in cable
	NPN - NO / NC	Teach-in cable	Teach-in cable	Teach-in cable
	0...10 V	—	—	—
	4...20 mA	—	—	—
	2 x PNP - NO / NC	—	—	—
	2 x NPN - NO / NC	—	—	—
1 x PNP - NO / NC + 1 x 0...10 V	—	—	—	
1 x NPN - NO / NC + 1 x 0...10 V	—	—	—	
1 x PNP - NO / NC + 4...20 mA	—	—	—	
1 x NPN - NO / NC + 4...20 mA	—	—	—	
temperature range		-20°C...+70°C	-20°C...+60°C	20°C...+60°C
protection degree		IP67	IP67	IP67
housing material		PBT	PBT	PBT
front-end material		epoxy glass resin	epoxy glass resin	epoxy glass resin
output	cable	—	—	—
	M12 plug	●	●	●
	M12 pig-tail	—	—	—
ATEX		—	II3GD (only PNP)	II3GD (only PNP)
other certifications		CE	cUL ^(*) US LISTED CE	cUL ^(*) US LISTED CE

(*) digital output only





Sensori Ultrasonici

M30**UT1**

Nuova serie



dimensioni	M30	
diffusione diretta	250...3.500 mm	
a riflessione	—	
barriera	—	
alimentazione	Vcc	●
	Vac	—
tipo di uscita	PNP - NO e NC	—
	NPN - NO e NC	—
	2 x PNP with hysteresis function	—
	2 x NPN with hysteresis function	—
	PNP - NO / NC	cavo Teach-in
	NPN - NO / NC	
	0...10 V	pulsante Teach-in
	4...20 mA	pulsante Teach-in
	2 x PNP - NO / NC 2 x NPN - NO / NC	pulsante Teach-in
1 x PNP - NO / NC + 1 x 0...10 V 1 x NPN - NO / NC + 1 x 0...10 V	pulsante Teach-in	
1 x PNP - NO / NC + 4...20 mA 1 x NPN - NO / NC + 4...20 mA	pulsante Teach-in	
limiti di temperatura	-20°C...+70°C	
grado di protezione	IP67	
materiale corpo	PBT	
materiale frontale	resina epossidica caricata in vetro	
uscita	cavo	●
	connettore M12	●
	connettore volante M12	—
ATEX	—	
altre certificazioni	 	







application book




ultrasonic & inductive
cylindrical & cubic

Inductive Sensors

Miniaturized

		PA	PB	PC	PD
					
dimensions		ø 3 mm	M4	ø 4 mm	M5
standard shielded		0.6 mm	0.6 mm	0.8 mm	0.8 mm
standard unshielded		—	—	—	—
long distance shielded		1 mm	1 mm	1.5 mm	1.5 mm
long distance unshielded		—	—	—	—
standard housing		—	—	—	—
short housing		—	—	—	—
miniaturized housing		•	•	•	•
power supply	Vdc	•	•	•	•
	Vac	—	—	—	—
output type	NPN - NO	•	•	•	•
	NPN - NC	•	•	•	•
	PNP - NO	•	•	•	•
	PNP - NC	•	•	•	•
	PNP - NO - NC	—	—	—	—
	NPN - NO + NC	—	—	—	—
	DECOUT®	—	—	—	—
	SCR	—	—	—	—
0...10 V		—	—	—	—
4...20 mA		—	—	—	—
temperature range		-25°C...+70°C	-25°C...+70°C	-25°C...+70°C	-25°C...+70°C
protection degree		IP67	IP67	IP67	IP67
housing material		stainless steel	stainless steel	stainless steel	stainless steel
active head material		PBT	PBT	PBT	PBT
output	cable	•	•	•	•
	M8 plug	—	—	•	•
	M12 plug	—	—	—	—
ATEX		—	—	—	—
other certifications		CE	CE	CE	CE



PP	PH	PE
		
5x5x25 mm	ø 6.5 mm	M8
0.8 mm	1.5 mm	1.5 mm
—	—	—
1.5 mm	—	—
—	—	—
—	—	—
—	—	—
•	•	•
•	•	•
—	—	—
•	•	•
•	•	•
•	•	•
•	•	•
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—
-25°C...+70°C	-25°C...+70°C	-25°C...+70°C
IP67	IP67	IP67
stainless steel	stainless steel	stainless steel
PBT	PBT	PBT
•	•	•
•	•	•
—	—	—
—	—	—
CE	CE	CE











application book

inductive
cylindrical







Inductive Sensors

Standard

		AH	AE	AM	AK
					
dimensions		ø 6.5 mm	M8	M12	M18
standard shielded		1.5 mm	1.5 mm	2 mm	5 mm
standard unshielded		2.5 mm	2.5 mm	4 mm	8 mm
long distance shielded		2 mm	2 mm	4 mm	8 mm
long distance unshielded		4 mm	4 mm	8 mm	12 mm
standard housing		•	•	•	•
short housing		•	•	•	—
miniaturized housing		—	—	—	—
power supply	Vdc	•	•	•	•
	Vac	—	—	—	—
output type	NPN - NO	•	•	•	•
	NPN - NC	•	•	•	•
	PNP - NO	•	•	•	•
	PNP - NC	•	•	•	•
	PNP - NO / NC	—	—	—	—
	NPN - NO + NC	—	—	—	—
	DECOUT®	—	—	—	—
	SCR	—	—	—	—
0...10 V		—	—	—	—
4...20 mA		—	—	—	—
temperature range		-25°C...+70°C	-25°C...+70°C	-25°C...+70°C	-25°C...+70°C
protection degree		IP67	IP67	IP67	IP67
housing material		stainless steel	nickel plated brass	nickel plated brass	nickel plated brass
active head material		PBT	PBT	PBT	PBT
output	cable	•	•	•	•
	M8 plug	•	•	•	—
	M12 plug	•	•	•	•
ATEX		II3GD	II3GD	II3GD	II3GD
other certifications					






DECOUT® NPN/PNP - NO/NC

AT	PM3	PK3
		
M30	M12	M18
10 mm	2 mm	5 mm
15 mm	4 mm	8 mm
15 mm	—	—
20 mm	—	—
•	•	•
—	—	—
—	—	—
•	•	•
—	—	—
•	•	•
•	•	•
•	•	•
•	•	•
•	•	•
—	•	—
—	•	—
—	•	•
—	—	—
—	—	—
—25°C...+70°C	-25°C...+70°C	-25°C...+70°C
IP67	IP67	IP67
nickel plated brass	nickel plated brass	nickel plated brass
PBT	PBT	PBT
•	•	•
—	•	—
•	•	•
I13GD	I13GD	I13GD
		



Inductive Sensors

IP68

		PMS	PMW	PKS	PKW
					
dimensions		M12	M12	M18	M18
standard shielded		2 mm	2 mm	5 mm	5 mm
standard unshielded		4 mm	4 mm	8 mm	8 mm
long distance shielded		—	—	—	—
long distance unshielded		—	—	—	—
standard housing		●	●	●	●
short housing		—	—	—	—
miniaturized housing		—	—	—	—
power supply	Vdc	●	●	●	●
	Vac	—	—	—	—
output type	NPN - NO	—	—	—	—
	NPN - NC	—	—	—	—
	PNP - NO	—	—	—	—
	PNP - NC	—	—	—	—
	PNP - NO - NC	●	—	●	●
	NPN - NO + NC	●	—	●	●
	DECOUT®	—	—	—	—
	SCR	—	—	—	—
0...10 V		—	—	—	—
4...20 mA		—	—	—	—
temperature range		-25°C...+70°C	-25°C...+70°C	-25°C...+70°C	-25°C...+70°C
protection degree		IP67/IP68	IP67/IP68	IP67/IP68	IP67/IP68
housing material		nickel plated brass	stainless steel	nickel plated brass	stainless steel
active head material		PPS	PPS	PSU	PSU
output	cable	—	—	—	—
	M8 plug	—	—	—	—
	M12 plug	●	●	●	●
ATEX		II3GD	II3GD	II3GD	II3GD
other certifications		CE	CE	CE	CE



Cubic

IL



dimensions	10x16x28 mm	
standard shielded	—	
standard unshielded	—	
long distance shielded	3 mm	
long distance unshielded	6 mm	
standard housing	●	
short housing	—	
miniaturized housing	—	
power supply	Vdc	●
	Vac	—
output type	NPN - NO	●
	NPN - NC	●
	PNP - NO	●
	PNP - NC	●
	PNP - NO - NC	—
	NPN - NO + NC	—
	DECOUT®	—
	SCR	—
	0...10 V	—
4...20 mA	—	
temperature range	-25°C...+70°C	
protection degree	IP67	
housing material	PA	
active head material	PA	
output	cable	●
	M8 plug	●
	M12 plug	—
ATEX	—	
other certifications	CE	



Ultrasonic
& Proximity Sensors
Catalogue



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