SENCON
SENSING • TESTING • GAUGING

Cupping Press Die Protection Sensors

Ensures that all cups have dropped and cleared the die area in the cupping presses, protecting expensive die tooling

Sencon's unique Die Protection Sensors are custom-designed to perform effectively and reliably in cupping presses, detecting whether the cups have dropped and cleared the die area. Given the substantial investment you've already made in your tooling systems, it makes sense to fit the best protection. That's why can makers worldwide use Sencon Die Protection Sensors.

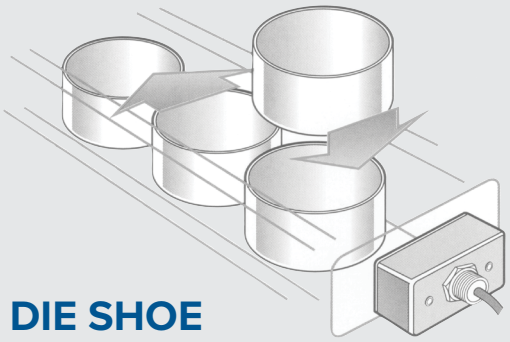


- **Discrete, secure and quick installation**
- **Reliable, uninterrupted service**
- **Tooling Protection**
- **Specially shaped housings for die shoe and guide rail mounting**
- **Compact size-sensors fit between lanes**
- **Carefully designed sensing field profiles**

Ordering Information

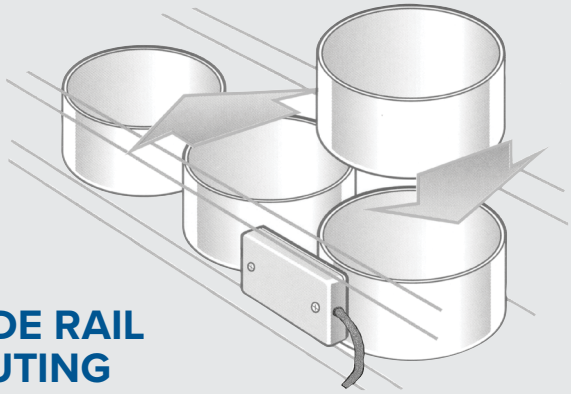
CODE	DESCRIPTION	ACTUATION POINT ALUMINUM CAN	ACTUATION POINT STEEL CAN	RESPONSE TIME	CASE STYLE	CABLE EXIT
9-275-03	Die Protection Sensor for Die Shoe Mounting	17.8 mm ±0.635 mm (0.70" ±0.025")	23.5 mm ±0.635 mm (0.925" ±0.025")	ON <1 ms OFF <3 ms	D	Back (conduit)
9-276-03	Die Protection Sensor for Guide Rail Mounting	14.7 mm ±0.635 mm (0.58" ±0.025")	21.1 mm ±0.635 mm (0.83" ±0.025")	ON <1 ms OFF <3 ms	E	Side
9-278-03*	Die Protection Sensor for Guide Rail Mounting	12.7 mm ±0.635 mm (0.50" ±0.025")	15.7 mm ±0.635 mm (0.62" ±0.025")	ON <1 ms OFF <2 ms	F	Side

*The 9-278-03 sensor has a slimmer profile than the 9-276-03, which makes it useful for presses with less space between the lanes.



DIE SHOE MOUTING

This model is designed for mounting on the die-shoe behind the cup drop zone.



GUIDE RAIL MOUTING

These models are mounted on the guide rails between the press lanes. They have specially tailored sensing fields so cups are detected reliably without being affected by the guide bars.

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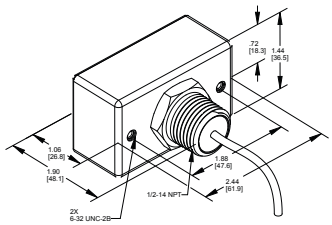
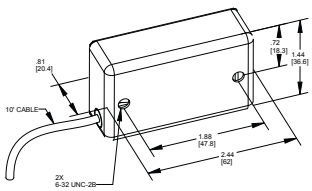
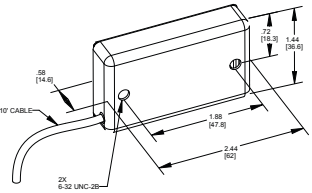
TECHNICAL SPECIFICATIONS

General Specifications:	
Operating Voltage:	10.5 - 40 VDC
Connection:	Sink(pnp) / Source(npn)
Cable:	Integral cable
Input Current:	<10 mA plus load current
Reverse Polarity:	Protected
EMI:	Protected
Case Isolation:	200 VDC
Response Time Switching "On":	<1 Millisecond
Response Time Switching "Off":	<3 Milliseconds
Storage Temperature:	-40°c to 90°c (-40°F to 193°F)
Operating Temperature:	0°c to 70°c (32°F to 158°F)
Termination:	Four conductor, stranded, awg # 22 (0.32 mm^2) shielded cable, 10 feet (3 m) long with pvc jacket

Physical Attributes:			
Case Material:	Anodized aluminum / PBT		
Environmental Protection:	Sealed to withstand the effects of vibration, humidity, emi, fungus, coolants, hydraulic fluids and dust.		
Case Style:	D	E	F
Dimensions:			
Height:	38.5mm (1.44”)	36.6mm (1.44”)	36.6mm (1.44”)
Width:	61.9mm (2.44”)	62mm (2.44”)	62mm (2.44”)
Depth:	26.8mm (1.06”)	20.4mm (0.81”)	14.6mm (0.58”)
Weight:	199g (7oz)		

Actuation Characteristics (at 24°C/75°F):			
	9-275-03	**9-276-03**	**9-278-03**
Aluminium Cup:	0.700 0.025” [17.78 0.64 MM]	0.600 0.025” [15.24 0.64 MM]	0.500 0.040” [12.7 1.02 MM]
Steel Cup:	0.925” [23.5 MM] TYPICAL	0.830” [21.08 MM] TYPICAL	0.620” [15.75 MM] TYPICAL
Mild Steel:	0.700” [17.78 MM] TYPICAL	0.700” [17.78 MM] TYPICAL	
Hysteresis:	1-10% (2.5% TYPICAL)	1-10% (2.5% TYPICAL)	1-10% (5% TYPICAL)
Repeatability:	±5%	±5%	±5%

Output Characteristics:		
Output Type:	**SINK**	**SOURCE**
Load Rating:	200 mA Resistive/Inductive	200 mA Resistive/Inductive
Voltage Drop @ 200mA:	<0.5 VDC	<1.5 VDC
Leakage Current:	<25 Micro AMP	<100 Micro AMP
Output State:	N/O (no target)	N/O (no target)
Output Configuration:	FET transistor switch to 0 VDC	FET transistor switch to +VDC
Short Circuit Protetion:	Continuous	

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DIE PROTECTION SENSORS

Our die protection sensors are designed to be integrated with various cupper machines applied in the traditional approach for cupper die protection.

BUILT TO LAST: Sencon's die protection sensors are built with durability and repeatability in mind and designed to withstand the hostile environment of the cupper. The solid-state components are encapulaed within the aluminium housing and a molded plastic sensing surface. The sensors are resistant to shock, vibration, coolants and humidity. Thermal stability provides repeatable, reliable performance across a wide temperature range.

EASY SETUP: Features a standard sink and source output. The output is configured with a 200 mA capability, enabling it to interface directly with discrete logic or relay control circuitry and programmable control systems. No field sensitivity adjustments are required.

SELF CONTAINED: This sensor does not require the use of an external circuit board. Amplifier, sense circuitry, etc. are all contained within the sensor's housing. No field sensitivity adjustments are required. The integral electronics will interface directly with discrete logic or computer controlled systems.

9-275-03

The cable protrudes from the rear of the sensor through a 1/2-14 NPT conduit fitting allowing it to be installed behind the cup drop point.

The 9-275 is also calibrated giving consideration to side metal. The sensor features an extended reach of 16.5 mm (0.65") for (soft) aluminum. Die sets with a vertical clearance of 53mm (2.1") were targeted when this sensor was designed.

9-276-03

Slightly smaller than the 9-275 and with a control cable which exits the sensor body at the side, allowing for the sensor to be mounted in the side rail separating cup drop zones. Calibrated for a reach of 14.7mm (0.58") for (soft) aluminum, this sensor is designed for side metal detection and does not feature a 1/2-14 NPT male conduit fitting.

9-278-03

A reduced mounting depth of 15 mm (0.6") enables 'side sensing' on most cuppers. Recessed in a sensor rail assembly separating cup chutes, it provides higher physical protection than traditional mounting.

A circular, centrally located sensing field optimized for cup grade aluminum (soft) maximizes cup detection while minimizing bridging, reducing false conveyor jams.

WORLDWIDE SUPPORT YOU CAN TRUST

We are committed to providing the best customer support worldwide with service engineers based in North and South America, Europe and Asia backed up with technical support from experienced industry specialists based at three technical support centers – you can trust Sencon.

Technical support is easily accessible through our 'Quick Assist' QR codes which offer support via WhatsApp*, email, web chat and telephone. Additionally, our online knowledge base provides support resources for all Sencon products.

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