



MODEL MD8100 HOT METAL DETECTOR



The self-contained Model MD8100 Hot Product Detector is available with either air coolant chamber venting as air purge or alternatively with a water coolant chamber and separate air purge.

- **Self-Contained "ALL-IN-ONE" Design.**
- **110 VAC or 24 VDC connection in one unit.**
- **Lens options: 2°, 4° or ½° x 25° F.O.V. Rectangular.**
- **DIP switch selectable thresholds down to 270°C.**
- **Output #1: Relay with SPNO contact.**
- **Output #2: Selectable PNP or NPN Transistor.**
- **Adjustable response time from 2 to 200 msec.**
- **Supplementary analog output to assist in alignment.**
- **Remote Self-check facility.**
- **Robust IP66 aluminum housing with unique combined air purge & cooling facility. Optional water cooling with separate air purge available.**
- **Excellent steam penetration.**

General Description

The MD8100 self-contained "All-in-One" Hot Metal Detector sensor combines the features and benefits of various models into one unit. Thus the MD8100 provides one detector that can be standardized on throughout the mill, the only decision that has to be made prior to installation is what appropriate lens to use. The MD8100 is the economical choice. Now there is no need to stock a detector for each different trip level. Thus the costly inventory of ordinary detectors can be replaced with a single MD8100 detector.

The MD8100 Hot Metal Detector is a robust sensor activated by the infra-red radiating from hot metal or product. Impervious to water or steam it is built to withstand the harshest environments.

All lenses incorporate filters removing the visible spectrum to minimize sensitivity to extraneous light. For general tracking, spot lenses are commonly used. Where high accuracy is required or the product deviates about the center line (i.e. Rod Mill) a ½° x 25° lens should be utilized. This lens is also highly suited to Strip Mills.

Especially suitable where ambient temperatures are subject to wide deviations. In standard format, a large air cooled chamber vents via a deflector in front of the lens providing combined air purged facility. Alternatively, an optional sealed water coolant radiator & separate air purge facility may be provided.

To accommodate variation in product temperature and background radiation, six specific I.R. thresholds, from 300°C to 550°C, are selectable by an internal DIP switch in 50°C steps. Further adjustment to the trip level down to 270°C and up to 750°C can be accomplished via a threshold sensitivity adjuster.

The MD8100 can be operate from either 110VAC-50/60 Hz or 24VDC power input. Standard output includes a cradle relay with a 8A/250VAC SPNO volt free contact plus a switch selectable PNP & NPN transistor output. Alternatively, an optional reed relay with SPNO contact can be provided in place of the cradle relay.

The MD8100 includes a supplementary 0-6VDC, non-linear, analog output. This selectable facility allows the user to establish the amount of received I.R. energy relative to the preset trip level and thereby establish that the lens is clean and the MD8100 threshold is set correctly. This feature also allows the user to align the detector to a precise low energy target (i.e. a flashlight) that would normally be insufficient to switch the detector.

The MD8100 includes a remote self check. This facility remotely initiates an internal lamp in close proximity to the photodiode. When activated by a remote contact, the detector switches and its performance checked.

MODULOC Technology - The Total Sensor Solution

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Dimensions

Housing: Aluminum AL6, Oven baked blue paint
Housing Rating: IEC IP66, DIN 89011
Weight w/o Cable: 1.9 Kg
Connector: IP65 Plug/Socket
Cable Length: 1.5 M
Cooling: Standard: -A Air Cooled & Air Purged
Optional: -D Water Cooled & Air Purged

Air Specifications

Air Pressure: 1 cu ft./min at 5 PSI for normal conditions
 5 cu ft./min at 15 PSI for severe conditions

Water Specifications

Water Pressure: 5 to 10 PSI
Water Volume: Regulate between 0.2 - 0.3 liters/min.
Water Temp.: For Ambient Temperature up to 80°C use ambient water below 20°C.
 For Ambient Temperature up to 90°C use water chilled to 5°C .

General Specifications

Lens F.O.V.:	Standard: -CR2 ½° x 25° Rectangular Slit Optional: -C2 2° or -C4 4° Spot	Supply Voltage	Standard: 110 VAC ± 15% 50/60 Hz and 24 VDC ± 15% Optional: 220 VAC ± 15% 50/60 Hz
Sensing Element	Germanium Diode	Power Consumption	5 VA
Power Indication:	Red LED	Operating Temperature	-20°C to +60°C without air cooling
Function Indication	RED LED		-20°C to +70°C with air cooling
Remote Self-Check	Single wire to +24 VDC internal line		+2°C to +80°C with (20°C) water cooling
I.R. Threshold settings	Selector switch selectable in 50°C steps between 300°C to 550°C	Output (#1)	Relay Output (SPNO) 250 VAC, 8A with 20 mSec response time. Optional: Reed relay
Min/Max I.R. Threshold settings	Down to 270°C and up to 750°C using internal sensitivity adjustment	Output (#2)	Switch selectable NPN or PNP Outputs, N.O., 500 mA, 45 V, 2A peak
Response Time:	2 msec. min to 200 msec max., dip switch selectable.	IR Analog Output	0 - 6 VDC, non-linear, for aiding in alignment

Smallest Detectable Product when utilizing a ½° x 25° Lens

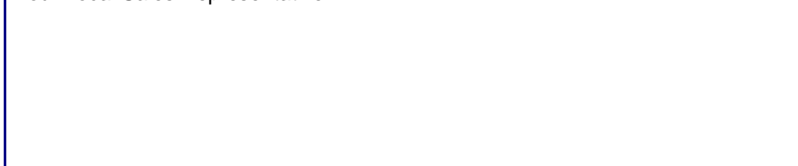
The following table identifies the minimum % of vertical field of view required with hot steel at stated temperature for it to be repetitively detected.

Indicative Preset Thresholds		
Steel Temp.	Nominal 350°C Preset Trip	Nominal 450°C Preset Trip
400°C	10%	Not Detectable
450°C	5%	100%
500°C	1%	60%
500°C	1/2%	20%
800°C	Less than 1/2%	Less than 5%

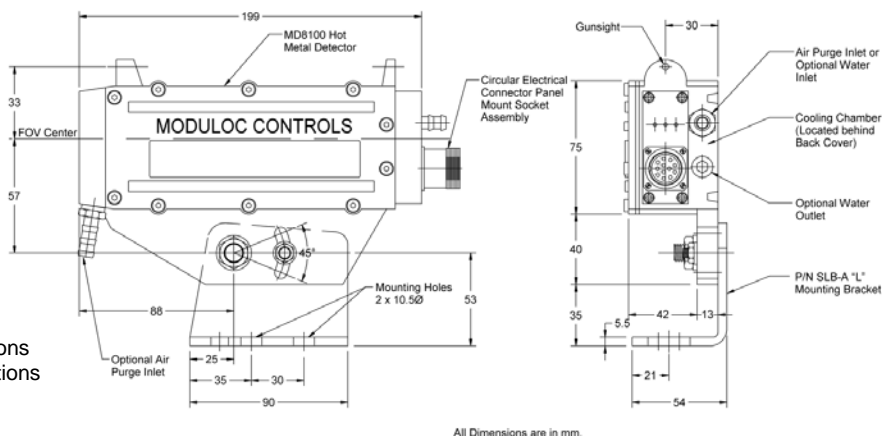
MODULOC
Control Systems

We reserve the right to alter specifications without prior notice. Specifications without tolerances are typical values.

Your Local Sales Representative:



Bul. MD8100-09-01
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All Dimensions are in mm.

Part Number Specifications

MD8100-81-C2-A
Supply Voltage: -81 110 VAC ± 15% 50/60 Hz and 24 VDC ± 15%
 -82 220 VAC ± 15% 50/60 Hz
Lens: -CR2 ½° x 25° F.O.V. Rectangular Slit
 -C2 2° F.O.V. Spot
 -C4 4° F.O.V. Spot
Cooling: -A Air Cooled & Air Purged
 -D Water Cooled & Air Purged

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