



MODEL MD85100 DIGITAL HOT METAL DETECTOR



The self-contained Model MD85100 Digital Hot Metal Detector is available with either air coolant chamber venting as air purge or alternatively with a water coolant chamber and separate air purge.

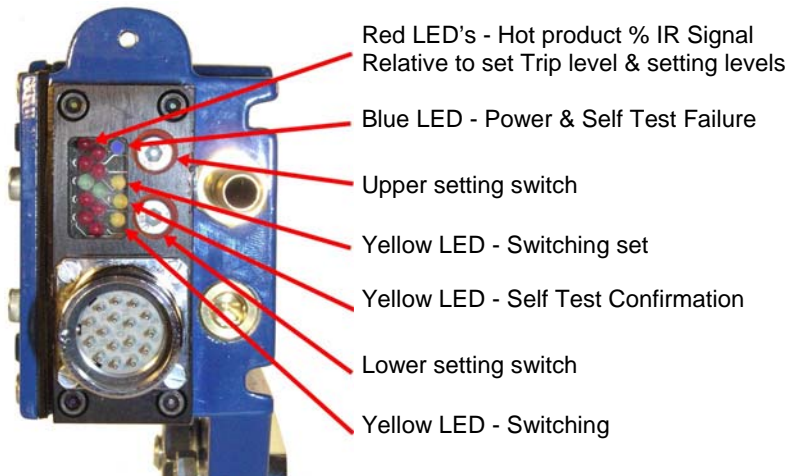
- **Fully digital "All-in-One" Design**
- **LED Bar Display of % IR input signal**
- **Operates from 80-240VAC or 24VDC Supply**
- **Lens options: 2°, 4° Spot Lens or ½° x 25° F.O.V. Rectangular Lens**
- **Programmable 270°C to 1000°C Trip Level**
- **Programmable response times from 1ms to 250ms**
- **Control Relay and Fast Reed Relay Outputs**
- **NPN and PNP Transistor Outputs**
- **Remote Self-test Facility**
- **Unique combined air purge and coolant facility**
- **Optional Water Coolant Radiator & separate Air Purge**

General Description

The MD85100 is a fully digital "All-in-One" Hot Metal Detector uniquely incorporating a bar display showing the % IR input signal relative to the pre-set threshold as well as programmable thresholds and response times via simple switch action. This and the universal connection format means it provides the user with one universal Detector that can be used throughout the mill. The MD85100 is the economical choice. Now there is no need to stock various Detectors for each location. Costly multiple inventory can be replaced by one Detector.

The MD85100 Hot Metal Detector is a robust sensor activated by the infra-red radiating from the hot product. Impervious to water or steam it is built to withstand the harshest of environments. The lens incorporates filtering that removes the visible spectrum to minimize sensitivity to extraneous light. Whilst for general tracking spot lenses are commonly the choice, where the bar bounces or strip to be detected and precise detection essential then the ½° x 25° lens should be utilized.

This Detector is especially suitable where ambient temperatures are subject to large changes. In standard format, a large air cooled chamber vents via deflector in front of the lens to allow the use of non-instrument air and provides air purging. Alternatively, an optional sealed loop water coolant radiator accommodates tap pressure and a separate air purge inlet may be provided.



Rear Bar Display

The rear bar display allows the user to clearly establish the amount of received IR both from the background metalwork and the bar being detected and thereby establishing the correct trip level required. This display also allows the user to align the Detector from a low energy source such as a flashlight, which normally would be insufficient to switch the Detector. Adjustment of both the threshold and the response time is also clearly defined by this bar display.

MODULOC[®] Technology - The Total Sensor Solution

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Housing Specifications

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 Standard up to 10.5 M available
Cooling: Standard: -A Air Cooled & Air Purged
Optional: -D Water Cooled & Air Purged

Air & Water Specifications

Air Pressure: 1 cu ft./min at 5 PSI for normal conditions
 5 cu ft./min at 15 PSI for severe conditions
Water Pressure: 5 to 10 PSI, 40 PSI Maximum
Water Volume: Regulate between 0.2 - 0.3 liters/min.
Water Temp.: For Ambient Temperature up to 70°C use ambient water below 20°C
 For Ambient Temperature up to 80°C use water chilled to 5°C

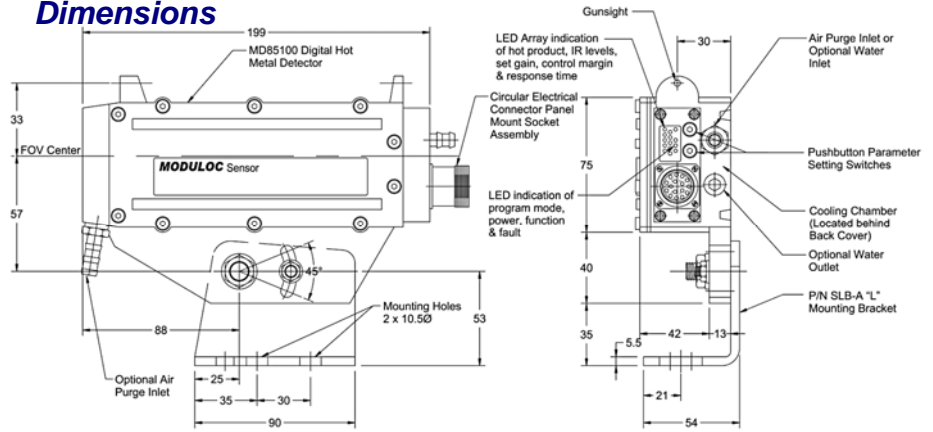
Part Number Specifications

Example: MD85100-81-CR2-A

Supply Voltage: -81 80 - 240 VAC ± 15% 50/60 Hz and 24 VDC ± 15%
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

Dimensions



General Specifications

Lens F.O.V.:	Standard: -CR2 ½° x 25° Rectangular Slit Optional: -C2 2° or -C4 4° Spot	Supply Voltage	Standard: -81 80 - 240 VAC, 50/60 Hz and 24 VDC ± 15%
Sensing Element	YnGas	Power Consumption	5 VA
Power Indication:	Blue LED	Operating Temperature	-20°C to +50°C without air cooling
Function Indication	Top & Bottom Yellow LED's		-20°C to +60°C with air cooling
Remote Self-Check	Middle Yellow LED's		+2°C to +70°C with (20°C) water cooling
% I.R. Signal	Red/Green/Red Bar Display	Output (#1)	Cradle Relay Output, SPNO, 240 VAC, 8A with 20 msec response time.
Min/Max I.R. Threshold settings	Down to 270°C and up to 1000°C via programmable switch	Output (#2)	Reed Relay Output, SPNO, 24VDC, 0.5A
Response Time:	1 msec. min to 250 msec max., via programmable switch	Output (#3)	NPN and PNP Outputs, N.O., 500 mA, 45 VDC, 2A peak

Additional Information

To accommodate variation in bar temperature and background IR, various precise threshold are programmable via covered switches from 270°C to 1,000°C to ensure reliable switching with reference to both the displayed background and product IR signal. Furthermore, response time is programmable from 1 ms to 250ms to accommodate black spots on the bar.

The MD85100 incorporates a remote self-check facility remotely energized by closed contacts that lights up an internal IR LED to switch the Detector and verify its' outputs operate correctly.

The MD85100 will operate from either 80-240 VAC or 24 VDC power input. Standard outputs include a cradle relay, a fast reed relay and both NPN/PNP transistor outputs.

Terminal Connections

Pin No.	Wire Color	Function
1	Pink	Self-test to +24 VDC Supply
2	Red	+ 24VDC Supply
3	Black	80 - 240VAC Supply Hot (L1)
4	White	Supply Neutral (L2)
5	Violet	PNP Transistor Output
6	Blue	0VDC (For 24VDC Supply)
7	Green	Ground
8	Brown	Relay Output (#1) N.O. Contact
9	Orange	Relay Output (#1) N.O. Contact
10	Light Blue	NPN Transistor Output
11	Yellow	Relay Output (#2) N.O. Contact
12	Grey	Relay Output (#2) N.O. Contact

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

Your Local Sales Representative:



Bulletin MC-MD85100-08-01
January 2008