

# MODULOC *Control Systems*



## DTF6000 TRAILFINDER DIGITAL INFRARED LOOP SCANNER



- **Determines relative bar position via multiplexed scanned InGaAs photodiode array .**
- **LED Bar Display of product pass line for correct alignment.**
- **Monitors hot product down to 400°C (750°F) regardless of product size.**
- **Automatic Gain operates via edge control margin evaluation.**
- **Analog output for product position.**
- **Digital outputs for product presence.**
- **Robust IP66 aluminum housing with water cooling chamber and separate air purging.**

### Typical Applications

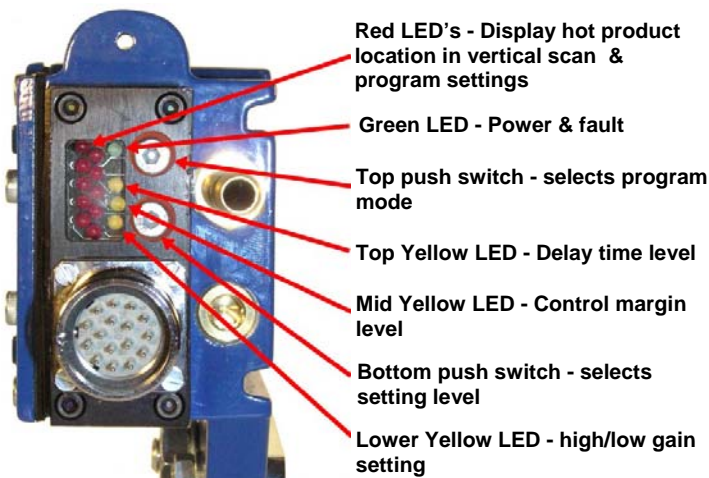
**Metals Industry:** Loop Control, Position of hot bar, rod or wire. Centering of Hot Strip. Edge detection & positioning.

**Other Industries:** Edge detection and positioning of hot product.

### Description

The digital Trailfinder operates via an internal microprocessor and a multiplexed scanned InGaAs Photodiode array. It provides both an analog output and displays the products hot edge position via bar display.

While normal Loop Scanners purely detect the product above a pre-set threshold, the Trailfinder operates via a programmable control margin to ensure precise and repetitive position output regardless of the product's size or temperature. It is not adversely affected by lens contamination, hot scale, metalwork or steam in the field of view. It provides very stable performance in difficult and varying environments such as found in mill stands that can defeat other scanners.



The Trailfinder detects the product edge precisely and repetitively, regardless of the product size and changes in temperature. The response time can be precisely set to accommodate black spots, etc. without detriment to its accuracy. Different types of analog outputs can be provided to match application requirements.

The internal 40 segment InGaAs Photodiode array is scanned every 2 ms for an exceptionally fast output. Internal filtering blocks out unwanted visible light and allows the IR input to be precisely transmitted without loss of signal. Unique use of fiber optic technology facilitates compact construction with high performance.

## 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:** 2.5 Kg  
**Cable Length:** 1.5 M  
**Cooling: Standard:** -D Water Cooled & Air Purged

## Air & Optional Water Specifications

**Air Pressure:** 1 - 2 cu ft./min at 5 PSI for normal conditions, no instrument dry air and 10 - 15 PSI for severe conditions  
**Water Pressure:** 1 - 2 Bar  
**Water Volume:** Regulate between 0.5 - 1 liter/min.  
**Water Temp.:** For Ambient Temperature up to +80°C (176°F) use industrial quality water at 25°C (77°F)  
 For Ambient Temperature up to +120°C (250°F) use water Chilled to 5°C (41°F).

## Performance

Model	DTF 6015	DTF 6022
Horizontal Field of View	30 degrees	45 degrees
Horizontal Resolution	40 Bits	40 Bits
Vertical field of view	3 degrees	4 degrees
Reproducibility	Resolution	Resolution

## Technical Info

Product Presence Outputs (3 total)	Output (1): Cradle Relay, SPNO, 250 VAC, 8A	Supply Voltage	110 VAC ± 15% 50/60 Hz or 24VDC ±10%
	Output (2): NPN & PNP 400 mA, 45 V, 2A peak	Power Consumption	2 Watts
	Output (3): Opto-isolated NPN Output 300 V, 150 mA, 200mW, 2 msec. response	Operating Temperature	-20°C (-4°F) to +50°C (122°F) without air or water cooling -20°C (-4°F) to +60°C (140°F) with air cooling -20°C (-4°F) to +90°C (194°F) inline vortex air cooling +2°C (36°F) to +120°C (250°F) with water cooling
Analog Output	Standard: -A1 0 -10 VDC Optional: -A2 +/- 10VDC, -A3 +/- 15VDC or -A4 4-20mA	Humidity	Max 90% RH (non condensing)
Linear resolution	±0.2% of full scale	Storage Temperature	-20°C (-4°F) to +70°C (158°F)
Response time	10 milliseconds	Self Check	Continuous automatic self check & remote self check facility
Product Temperature Limit	Minimum 400°C (750°F) Maximum 1200°C (2190°F)	Array Scan Time	2 milliseconds
Sensing Element	InGaAs Photodiode Array (IR filter removes visible spectrum)		

\* Optional Logic Alarm Now Available

### Typical hot background signal

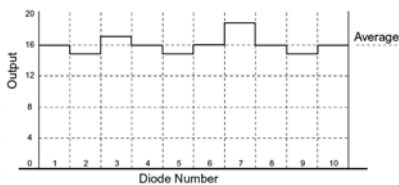
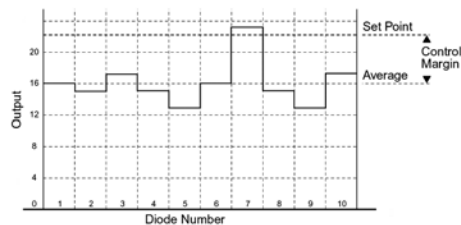


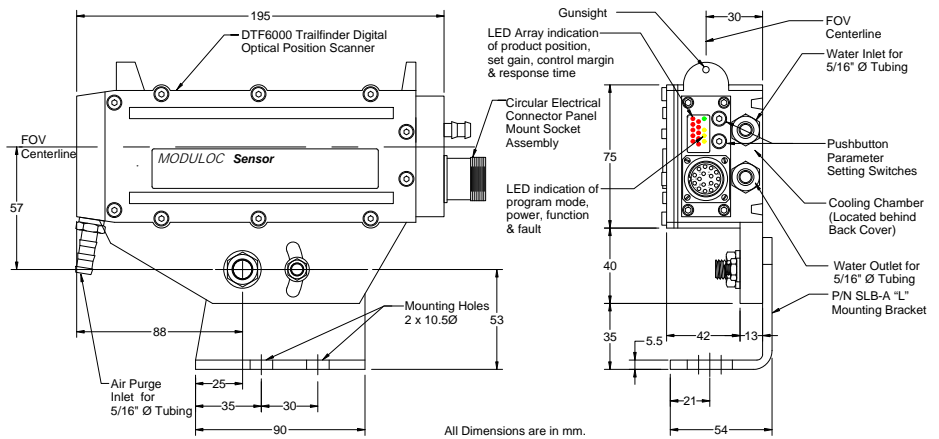
Chart illustrating signal from typical hot background

### Typical signal with passing hot bar



This chart illustrates the control margin. Where the background IR is uniform then the control margin can be set to a lower figure. Any hot product passing needs to give a signal that exceeds the set point.

## Dimensions



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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-DTF6000-10-05  
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