MODULOC SENSOR ENTERPRISES

MSE

MSE-LP600 Digital Optical Position Looper Scanner

- Determines relative bar position via multiplexed scanned germanium diode array
- LED Array Display of product pass line for correct alignment
- Automatic Gain operating via edge control margin evaluation
- Analog output for product position.
- Digital outputs for product presence
- Robust IP66 aluminum housing with water coolant chamber and separate air purge facility

General Description

The MSE-LP600 Digital Optical Position Looper Scanner operates via internal microprocessor and a multiplexed scanned 20 Segment InGaAs Photodiode Array segmented into 40 segments and scanned in 2 ms for exceptionally fast output. It provides both analog output as well as displaying the products hot edge position via a rear bar display.

Whilst normal Optical Position Scanners purely detect the product above a pre-set threshold as the MSE-LP600 operates via a programmable control margin it ensures precise and repetitive positioned output regardless of the product's size or temperature. Hence, it is not adversely affected by lens contamination, hot scale, metalwork or steam in the field of view. As a result it provides very stable performance in difficult and variable environments such as found in Mill Stands that can defeat other Looper Scanners.

Being a digital device, the MSE-LP600's response time may be precisely set to accommodate black spots, etc. without detriment to its accuracy. Furthermore, the Looper detects the product edge precisely and repeatability regardless of the product size and changes in temperature over the range of 350ºC - 1200ºC (662ºF - 2192ºF) . A 0-10VDC or an optional 4-20mA analog output is available according to requirements.

The MSE-LP600 is available for 24 VDC supply connection. Supplementary product presence detection is provided by an 8 Amp/240 VAC control relay output, NPN/PNP transistor outputs, and an Opto-Isolated output.

Rear Bar Display (Shown on the left)

The rear bar display consists of 10 LEDs and is a visual indication of the hot product in the looper scanners Field of View.

The rear bar display is also used to determine the correct mounting position and alignment. The Looper Scanner should be installed at appropriate distance and angle such that the total product movement is displayed over a wide portion of the bar display, but well within the limit of the display.

A blue LED Is provided for an indication that power is on and flashes if the automatic or manual self-check feature fails. Three yellow LEDs are provided as an indication of the presence of hot product and to aid in programming operating parameters.

Typical Applications

In the Hot Mill: Loop Control of hot bar, rod or strip. Centering of Hot Strip. Edge Detection & Positioning.

Other Usages: Cold strip steerage, strip edge detection and loop control.

Housing Specifications

Housing: Aluminum AL6, Oven baked blue paint
Housing Rating: IEC IP66, DIN 89011
Weight w/o Cable: 1.9 Kg (4.2lb)
Connector: IP66 Plug/Socket
Cable Length: 2m (6.6ft) (standard) - Optional 5m (16.4ft), 10m (32.8ft) , 15m (49.2ft)

Air & Water Specifications

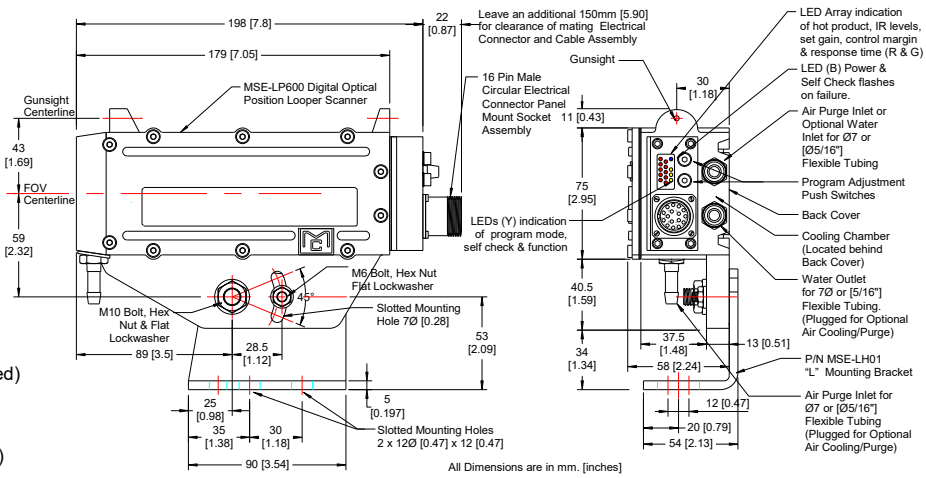
Air Pressure: 1 - 2 cu ft./min at 5 PSI for normal conditions, Non-instrument dry air and 10 - 15 PSI for severe conditions
Water Pressure: 1 - 2 bar
Water Volume: Regulate between 0.5 - 1 liter/min.
Water Temperature: For Ambient Temperature up to +80°C use industrial quality water chilled at 20°C minimum

Part Number Specifications

Example: MSE-LP600-96-7-D
(24VDC, 0-10VDC Analog Output, Water Air Cooled & Air Purged)

Supply Voltage:	**-96**	24 VDC
Analog Output:	**-7**	0-10VDC (standard)
	-6	4-20mA (optional)
Cooling:	**-D**	Water Cooled & Air Purged (standard)
	-A	Air Cooled & Air Purged (optional)

Dimensions



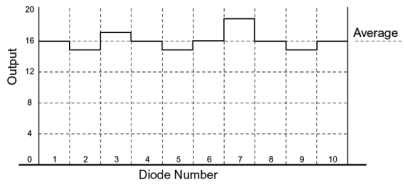
All Dimensions are in mm. [inches]

General Specifications

Lens F.O.V.:	Standard: 3° x 30°	**Supply Voltage**	24 VDC ± 10%
Sensing Element	InGaAs Photodiode Array (20 diode)	**Power Consumption**	2 Watts
Array Scan Time	2 ms	**Operating Temperature**	-20°C (-4°F) to +50°C (122°F) without cooling to +80°C (176°F) with water cooling chilled at ≤ 20°C Higher temperature operation is possible using special cooling protection and heat shield.
Power Indication	Blue LED, flashes in Self-Check Fault		
Product Presence	Top & Bottom Yellow LED's		
Product Position	Red LED Bar Display	**Relative Humidity**	Max. 90% (non condensing)
Analog Output	0-10VDC (standard), 4-20mA (optional)	**Storage Temperature**	-20°C (-4°F) to +70°C (158°F)
Linear Resolution	±0.2% of Full Scale	**Remote Self-Test**	Remote Self Check Facility
Product Temperature Limit	Minimum: 350°C (662°F) Maximum: 1200°C (2192°F)	**Product Presence Outputs (3 Total)**	Cradle Relay Output (SPNO) 250 VAC, 8A, 20 ms response. NPN & PNP Transistor Outputs, N.O., 400mA, 45V, 2A peak Opto-isolated Output, 150mA, 300V
Response Time	10 ms		

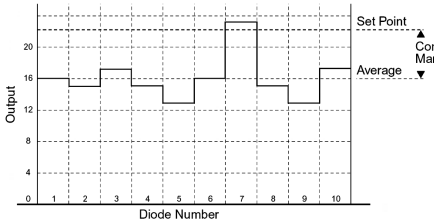
Control Margin Illustration

Typical hot background signal



This chart illustrates the IR 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.

Terminal Connections - Wire Colors - Function

Pin	Wire Color	Function
1	Brown	+ 24VDC Supply
2	Blue	0VDC Supply
3	Red	PNP Transistor Output, 24VDC, 0.5A
4	White	NPN Transistor Output, 24VDC, 0.5A
5	Grey/Pink	+24VDC Output (for NPN & optional 4-20mA)
6	Yellow	Analog Output, 0-10VDC (or optional 4-20mA)
7	Pink	Self-test (connect to Pin 5)
8	Black	Opto-isolated Output, 150mA, 300V, Collector
9	Red/Blue	Opto-isolated Output, 150mA, 300V, Emitter
10	Violet	Relay Output, SPNO 250 VAC/8A, 20 ms response time
11	Grey	Relay Output, SPNO, 250 VAC/8A, 20 ms response time
12	Green	Ground (0-10VDC Ground & PNP Ground)

This MSE sensor is manufactured by Moduloc System Engineering Ltd. Yantai Shandong, China P.R. which was established 2007.
The MSE-LP600 is a direct replacement for the Model No. DTF6015 previously manufactured by Moduloc Control Systems Ltd of the United Kingdom. Please contact MSE for additional questions on other replacement model numbers .

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

Your Local Sales Contact:

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