



REMOTE SERIES 9000 HOT PRODUCT SENSORS

UTILISING OPTIC LEADS & SEPARATE LENSES

Optic leads and lenses withstand 400°C

Highly precise viewing fields with unique linearised optic lead

Excellent steam penetration

Interchangeable remote lenses

½° x 25°, 1°, 2°, 4° & 7° F.O.V.

Robust sensors activated by the infrared radiating from metal and glass. They are impervious to water or steam and built to operate in the harshest vibrations experienced in heavy industry.

Utilisation of armoured optic lead allows the lens to be installed close to the process line in high ambient, whilst allowing the controller to be mounted in a safe and accessible area.

Sensors with four specific I.R. trip levels and adjustment facility are available to accommodate variation in product temperature as well as background radiation. A fifth model offers background suppression and only responds to sharp rises in radiating infrared signal. All sensors incorporate filters to minimise sensitivity to extraneous light.

Several lens formats are available. For tracking of product on centre line a 7° lens is commonly used. Where high accuracy is required or the product is rarely on the centre line (i.e. rod mill) a ½° x 25° should be utilised. This latter lens is also highly suited to strip mills.

A supplementary analogue output is offered to assist in alignment off a small light source as well as indicating contamination of the lens.

Smallest Detectable Product when utilising 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.

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%
600°C	½%	20%
800°C	less than ½%	less than 5%



Remote Controller in Mounting Cradle

- AC & DC Sensors with single or dual switching outputs
- Adjustable I.R. trip levels
- Self check facility - 1 or 2 wire
- Supplementary analogue output
- Stainless Optic Leads up to 15 metre length



Selection Type Coding

From a selection of trip levels, lens varieties, electrical connections and other options, it is a straightforward procedure to identify by type coding the exact sensor required for a particular installation. Namely from the following options.

Illustrates remote unit for AC connection with 300°C minimum trip level. Incorporates 2 metres optic lead, 1/2° x 25° lens, both air cooled and purged, plug connector, self-check and 8 Amp C/O relay output.

Specifies Normal I.R. Trip Level

I.R. TRIP CODING	Static Trip Level Units			
	MD 925_ _.	MD 945_ _.	MD 960_ _.	MD 980_ _.
Minimum switching level* (100% product in lens F.O.V.)	300°C (570°F)	450°C (840°F)	600°C (1100°F)	800°C (1470°F)

*Quoted trip levels are all adjustable to higher thresholds.
Normal practice is to select a sensor with a trip level well below the products temperature.

MD 92542-FR2-D-91B

Identifies Options: Plug/Self-Check/Analogue

Basic unit with connection by glanded cable	MD...1
Unit with additional self-check	MD...2
Unit with plug connection	MD...3
Unit with self-check and plug connection	MD...4
Supplementary analogue output via cable connection	MD...5
Supplementary analogue output via plug connection	MD...6
Supplementary analogue output & self-check via plug connection	MD...7

Specifies Optic Lead Length

Code	
1 to 15	Indicates optic length (up to 15 metres)

May be ordered separately.
See Remote Lens Data Sheet.

Indicates Lens Requirement

Lens Coding	F1	F2	F4	F7	S2R	FR0	FR1	FR2
FIELD OF VIEW	1°	2°	4°	7°	2 x 15°	1/2° x 5°	1/2° x 10°	1/2° x 25°
Viewed area at 1 metre (mm²'s)	20	40	70	120	40 x 370	10 x 130	10 x 300	10 x 500

Electrical Connection & Output Options

Type 11	Direct 2 wire AC N/Open Thyristor Output Supply voltage 80 - 250 VAC 50/60Hz
	Current leakage (off) -5.5mA at 110 VAC Voltage drop (on) -12V at 1 mA Overload trip -300 mA continuous Minimum load -5 mA at 110 VAC Switching speed -10 millise. on & off
Type 91	AC DRIVEN with Relay Output Supply voltage 110 or 220/240 VAC 50/60 Hz
91A	Double pole reed relay, 4 millise. response Rating 240 VAC, 200 VDC - 0.5 Amp low
91B	Change over cradle relay, 20 millise. response Rating 8 Amp - 250 V rating
	DC DRIVEN with dual Output Supply voltage 24 VDC ± 15%
Type 93	N/Open NPN transistor output (protected 500 mA) and single pole reed relay (2 Amp, 700 VDC, 25W) Rating 240 VAC, 200 VDC - 0.5 Amp low
Type 95	N/Open PNP transistor output (protected 500 mA) and single pole reed relay (2 Amp, 700 VDC, 25W) Switching speed 2 millise. on & off

Specifies Lens Mount Options

Code	
P	Air Purge Mount
C	Water Cooled Mount
A	Air Cooled and Purged Mount
D	Air Purged and Water Cooled Mount

These fittings may be ordered separately.
See Remote Lenses Data Sheet.

General Specifications

Housing: Aluminium AL6.
Rating: IP66, DIN, 89011.
Coating: Oven baked black paint.
Weight: 1.7 Kilo excluding remote lens and optic lead.

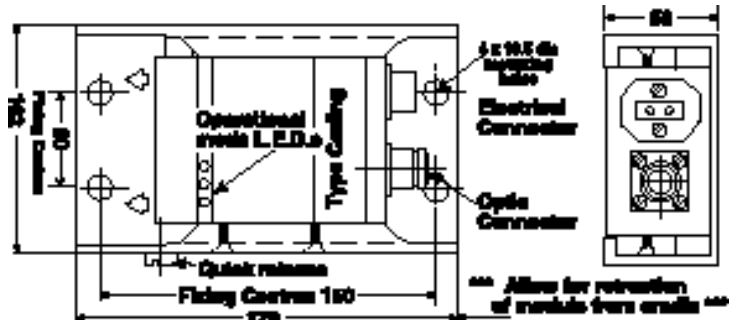
Ambient limits: Germanium units: -20C to +65C.

Electrical connection: IP65 plug and loose socket for single output. Dual outputs provided with 1.5 mtrs armoured 0.5mm core cable connected via plug/socket.

I.R. Trip: MD 925_ : 270°C to 420°C
MD 945_ : 430°C to 550°C
MD 960_ : 580°C to 700°C

(via screw adjuster & resistor link)

SERIES 9000 REMOTE CONTROLLER IN MOUNTING CRADLE



Refer to separate remote lens data sheet for dimensions

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The information presented herein is, to the best of our knowledge, accurate. However, please ensure that this information has not been amended or superseded.