

MODULOC®

Control Systems



MD3500 SERIES LASER DISTANCE SENSOR



In 2015 a need emerged from the market for a laser distance sensor that could provide long range with high accuracy and also be versatile enough to fill a range of client needs. The wide range of scope meant we needed to use a core module and make it bespoke for the array of markets it needed to fill; Sometimes for industrial applications in a Steel Mill or for Ex rated applications in a Gas Holder (see image above) or outdoors in harsh climatic and environmental conditions.

The result was the emergence of the MD3500 laser, possibly the most versatile high spec laser distance sensors in the world today. Ranging from its basic hand held module with digital screen display to an industrialized water cooled variant working on objects beyond 1300°C to an ATEX rated UL certified unit for use in Highly explosive areas.

MODULOC® Technology - The Total Sensor Solution

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MD3500-XT:

Following a request from the Clayton Walker Gasholder division of Motherwell Bridge (Part of the CAPEPLC Group) MCS were tasked with the design of a high accuracy long range laser that would be Ex rated and certified. The application was for the MCS lasers to measure the distance to multiple points on a floating floor inside of a "Gas Holder" and in so doing provide the data to an automated leveling system. To complicate matters the unit would be part of a project where local ambient temperatures required the unit to be able to operate at -40°C and despite having already provide a system previously for the TATA steel Port Talbot site the need was for a smaller, lighter less costly system. Quite the challenge.... Smaller, lighter, more accurate lower temperature rating and all for a lower cost.

The reality was MCS were already 90% complete on development of a new sensor range and this project helped to motivate early completion. Agreeing a timescale acceptable to the client final development and testing were undertaken and the first MD3500-XT systems produced ahead of schedule and ahead of the client's expectations. Project completion and delivery to customer took place on 21 December 2015.



MD3500-1-XT : Ex rated laser distance sensor with heater

10 KEY FEATURES

- +/- 1mm accuracy
- 0.1mm resolution
- Low cost yet long range 150mm – 500m
- Can measure on hot objects 1300°C+
- Heater option allowing -40°C operation
- Analogue and Digital outputs
- Auto distance tracking
- Digital display
- Ex certified units by UL available
- Air purge, air cooled and water cooled options

Exd 11C

EExd11C Class I Groups B, C & D

Class II Groups E, R and G

Class III—Atex 112 GD

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MD3500VHT:

In Q4 of 2015 GE (Formerly Converteam) in Rugby contacted MCS about a problem they were having with existing systems in the SAIL Rourkela plant in India. The systems in place were a break beam type from one of the Industry's best known manufacturers of such systems but they were failing to cope with the fast speed and hot temperature combination on the line. Moduloc were asked to provide options for replacing those systems and with both time and cost restraints in place attended a design review meeting in Rugby at the GE offices. After agreeing a technical spec that met the client's needs and with the MD3500-XT still fresh the offer was made to GE to trial a water cooled non Ex rated variant. The MD3500VHT.

A demo unit was shipped end of 2015 on a 2-month trial/demo and following successful testing over an extended period SAIL and GE purchased 5 systems in May 2016. GE took advantage of the MCS exchange program (where in return for failed units from a non Moduloc Manufacturer MCS would provide a discount to the client on new replacement items) and full delivery and project closure took place within 1 month of the order.

Azz Molten Zinc level detection

At the same time as GE took delivery the Azz zinc galvanizing plant near Dallas Texas completed successful testing of the MD3500VHT on molten level measurement of the zinc bath although in the end they opted for a more accurate MCS product at a higher cost the sensor met all expectations and passed testing with flying colours.

New Zealand Steel

April 2016, S & I Solutions the MCS partner in New Zealand needed a high speed high temperature sensor to compete in trials against a range of other manufacturers including all of the well-known brands from both the USA and Europe. A demo unit was shipped within a week and competitive trials took place over a 2-month period. Despite stiff competition the MCS solution won out and a subsequent order for 5 systems placed in June and shipped 2 weeks later.

Optional Extras

In Rourkela the sensor would be subject to waves of heat due to the positioning of the sensor below the line. To alleviate this Kevlar heat shield jackets were provided for each sensor and both air purge and water cooling options chosen.

Nz Steel Requirements

Red hot billets at 900°C

Cut length max error of 20mm

Cast speed 60mm/s

Sensor response time 10m/s at 20m/sec.

Distance 25m

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