

Monitoring transfer car position

Industries: Metal / steel industry
Application type: Position measurement / Monitoring

Description

A global steel production facility was experiencing production downtime, because the large transfer cars (200 feet in length) used to transport massive, red-hot steel plates were overshooting their shuttle positions or colliding with the barrier stops at the end of a rail guided transfer line. Production stoppages were caused by the malfunctioning of floor-mounted micro-switches, which were triggered by the transfer cars and positioned at six points along a 55 to 60-foot track.



Fig 1: Mounted Target plate on transfer car

To replace the malfunctioning micro-switch system, a non-contact distance laser measurement system was designed, installed, and implemented by a local integrator. The replacement system consisted of: Two Dimetix Laser Distance Sensors enclosed in NEMA 4X rated protective housing. Corresponding reflective target plates attached to the transfer car. A display/controller consisting of a panel-mounted serial display and analog transmitter.

The protective enclosures housing the lasers also included a vortex-compressed air-cooling system to continuously monitor temperature and cool the inside of the enclosure. The same compressed air stream was passed over a boron silicate glass viewing window with a unique perforated silicon gasket that directs a stream of clean, cool air over both sides of the viewing window. The continuous flow of air over the viewing window maintains the temperature inside and outside the housing and also provides an air purge to prevent dust accumulation.



Fig 2: Transfer car

Customer advantage

- Easy installation thanks to visible laser beam
- Operation in the largest temperature range (-40°C to +60°C) possible
- Measuring ranges up to 100 m on natural surfaces
- Measuring ranges up to 500 m on reflective foil
- Accuracy ± 1 mm
- Repeatability ± 3 mm
- Measurements can be acquired by a PLC or PC
- Maintenance-free operation



Dimetix Sensors – the solution for applications with high precision requirements

Thanks to the clearly arranged product portfolio the evaluation of a suitable Dimetix distance laser sensor is simple and uncomplicated.

Dimetix sensors offer numerous features, which are integrated in each and every device as standard, including, among others, various interfaces like SSI, RS-422/485, RS-232 and 2 digital outputs.

Optionally, the Industrial Ethernet interfaces PROFINET, EtherNET/IP and EtherCAT are also available. Furthermore, all devices are IP65-protected and impress with a weight of less than 500 grams!

Particularly noteworthy, however, is the accurate measurement of 1 millimeter over distances of up to 500 meters, even under the most extreme conditions. This is possible with the sensors of the types DPE, DEN and DEH.

No less interesting are sensors of types DAE, DAN and DBN. Preferably, they can be used for projects which do not require a range over 500 meters or are cost-sensitive.

	DPE-10-500	DPE-30-500	DEN-10-500	DEH-30-500
PARTNUMBER	500630	500636	500637	500638
SPECIFICATION				
Typical accuracy $\cong \pm 2\sigma$	± 1 mm	± 3 mm	± 1 mm	± 3 mm
Mensurierung range on natural surfaces	0.05...~100 m	0.05...~100 m	0.05...~100 m	0.05...~100 m
Measuring range on reflective foil	~0.5...500 m	~0.5...500 m	~0.5...500 m	~0.5...500 m
Max. measuring rate	250 Hz	250 Hz	50 Hz	50 Hz
Operating temperature	-40...+60°C	-40...+60°C	-10...+50°C	-10... +60°C

	DAE-10-050	DAN-10-150	DAN-30-150	DBN-50-050
PARTNUMBER	500633	500632	500634	500635
SPECIFICATION				
Typical accuracy $\cong \pm 2\sigma$	± 1 mm	± 1 mm	± 3 mm	± 5 mm
Mensurierung range on natural surfaces	0.05...~50 m	0.05...~100 m	0.05...~100 m	0.05...~50m
Measuring range on reflective foil	~40...50 m	~40...150 m	~40...150 m	
Max. measuring rate	50 Hz	50 Hz	50 Hz	10 Hz
Operating temperature	-40...+60°C	-10...+50°C	-10...+50°C	-10...+50°C

