InteliSENS®

Eccentricity Gauge

Non-Contact Eccenctricity and Diameter Gauge

- Non-Contact Eccentricity

- 8 Point Wall Thickness

- Dual Axis Diameter Measurement

- Super Fast Measuring Rate

- Integrate to Machine PLC

- Industry 4.0 Data Communications

InteliSENS

Eccentricity Gauge

Non-Contact Eccenctricity and Diameter Gauge

The InteliSENS EG Series Non-Contact Eccentricity and Diameter gauge is designed for measuring a range of insulated wires up to 12mm (0.47") diameter. The EG0112 is ideal for High Frequency Data and small Coaxial Cables where eccentricity is critical for cable performance. The EG0812 is ideal for Automotive, Instrument and small Energy Cables where wall thickness and diameter are kept at the optimum size to maintain quality and reduce material usage.

Automatic position adjustment ensures the cable is centered within the measuring zone. A built-in or remote SiDi CDi4 display provides a clear visual of 8 Point Wall Thickness, Diameter, Eccentricity and optional features.

Focused on connectivity the InteliSENS EG Series feature 32bit communication and come preloaded with Profibus, Profinet and Ethernet Industrial Protocol for your PLC connection. Modbus, OPC-UA, RS232, RS485 and WiFi are included as standard providing a wide range of digital communications for your Industry 4.0 Solution.
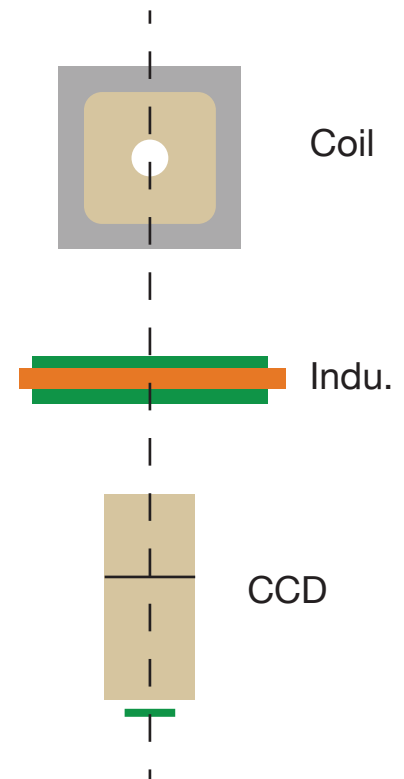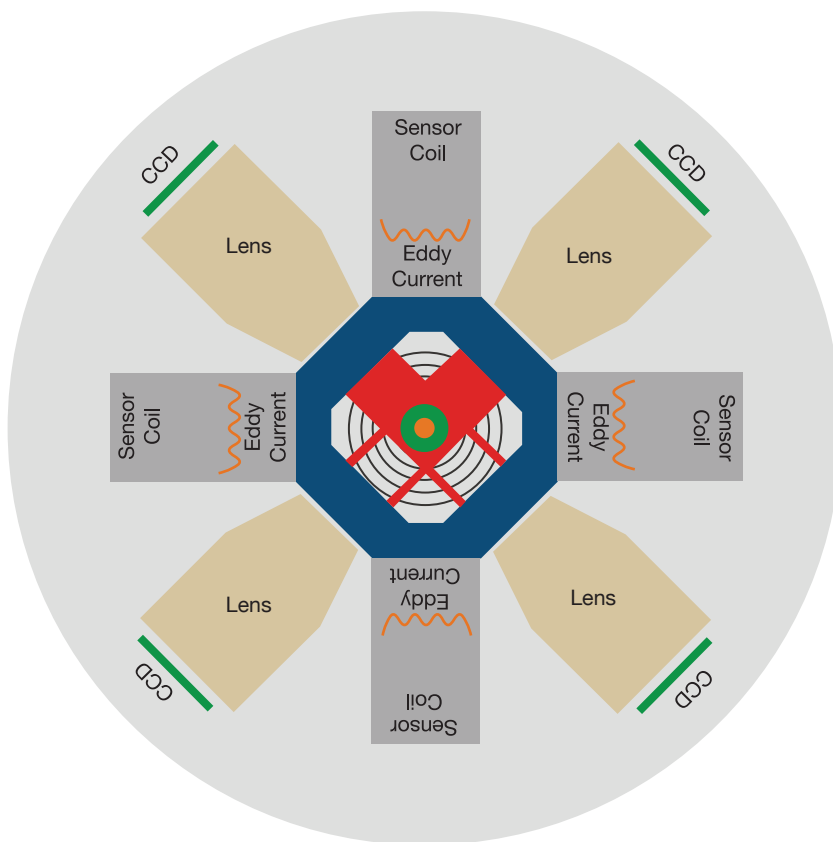
Measuring Principle

The Eccentricity Gauge combines electromagnetic and optical scanning principles. The optical scanning system is used to measure the diameter and the electromagnetic system is used to determine the conductor position, eccentricity, and 8 point wall thickness.

Optical measurement is done by sending out light from LEDs which shine on the measuring object thus casting a shadow on the CCD receiver. The image information is then evaluated by integrated signal processors.

The optical measurement and magnetic measurement are performed simultaneously at high rates, minimizing inaccuracies caused by wire vibrations, and both measurements are controlled on the same plane to eliminate the errors due to product twists.
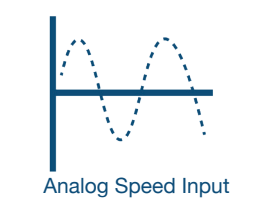
Co-Planer Measurement

Specifications

Performance

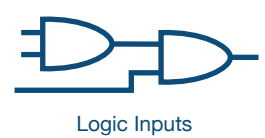|	EG 0112	EG 0812
Number of Axes	2	2
Gate Size	16mm / 0.63 inch	16mm / 0.63 inch
Min Object Diameter	0.1mm / 0.004inch	0.8mm / 0.03inch
Max Object Diameter	12mm / 0.47inch	12mm / 0.47inch
Resolution	0.01µm	
Diameter Accuracy	+-1µm	
Eccentricity Accuracy	+-1µm	
Optical Scan Rate	10,000 Scans / Second (5,000/Sec/Axis) 20,000 Scans/ Second (10,000/Sec/Axis) Option	
Eccentricity Update Rate	1ms	
Units	Diameter Measurement selectable mm, inch	

Electrical and Operating Requirements

Power Supply	Power Consumption	Operating Temperature	Environmental Protection
85 - 274 Vac	300 Watts	5°C - 45°C (41°F - 113°F)	IP 65

Connectivity
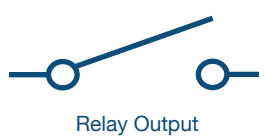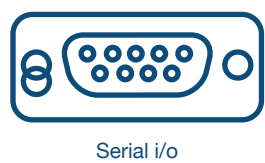
Analog Speed Input

Analogue input 0 - 10vdc
Required for Optional PI feedback diameter control and SMFD location
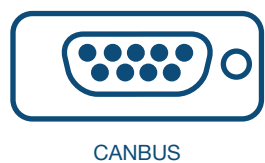
Logic Inputs

Pulse Input 250kHz max frequency, 30v or 50v max pulses on two distinct input
Required for Helix Mode, Tolerance Location and Optional SMFD and PI feedback
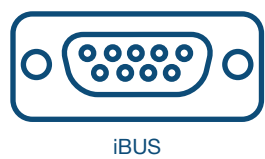diameter control

Relay Output

Maximum Voltage 50Vdc / 30 Vac / 0.5A
Selectable function: Gauge OK, Eccentricity Tolerance exceeded, Upper Tolerance
exceeded, Lower Tolerances exceeded, Single Measurement Flaw Detection (SMFD) ,
Over any (Limit), Under any (Limit), Lump & Neck, Lump, Neck, Over average, Under
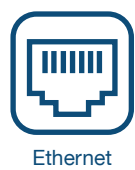average, Window dirty

Serial i/o

RS232 Modbus Communications
USB using RS232 - USB Converter Cable
ZM4000 Printer Communications

CANBUS

Connects to Proton Products CDi4 Display

iBUS

Ethernet TCP/IP Modbus is the Default Communication. Connect to a PLC using ProfiB-
us, ProfiNet, or EtherNet I/P.

Ethernet

Ethernet selectable between OPC-UA and Modbus Products CDi4 Display

WiFi

Connect to a PC or Mobile Device and use the Proton Products Gauge
App available for iOS and Android. Ideal for gauge configuration and diagnostics.

4.0 INDUSTRY

More than 200 Data Words are available to communicate with your Industry 4.0 Solution. Data Words are divided the into distinct function groups to make it easy to select the ones you want.

Gauge ID Data Words	Model Number, Serial Number, Firmware APP version, Firmware Core Version, Firmware Date
Calibration Data	Last Calibration Date, Days Since Last Calibration, Total Run Time, Calibration Alarm
Validation Data Words	SNR, Signal Amplitude, Good Readings, FFT Amplitude
Wired Network Info	IP Address, Netmask, Gateway
WiFi Network Info	IP Address, Netmask, Gateway, SSID
Measurement Data	Diameter, Eccentricity, Eccentricity Angle

Smart Sensors Enable Smart Factories

"Industry 4.0 the Fourth Industrial Revolution is real. In its various shapes, forms, and definitions, it's happening, accelerating around the world, and Proton Products is an active player in this movement. A Smart Sensor is a Bridge between the Physical World (Measurement of Products and Processes) and the Digital World (MES, ERP Factory Management Systems). The more connected these worlds are, the more informed we become, improving our decision processes which ultimately enable us to reach our goals."
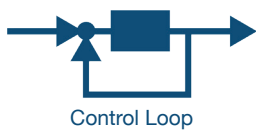
Proton Products Inc.

Enhanced Features

Gauge Head Add on Hardware

3 Analog Outputs

3 analogue (+107) outputs can be set to X, Y, Z axis output for 2 and 3 axis gauges. Average diameter, diameter error, ovality and ovality error.
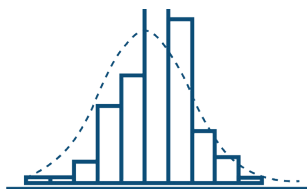
Control Loop

Feedback Control monitors the actual measured diameter compared to a Preset Value and provides a Control Output Signal that can be used to trim the motor output and maintain the product diameter within the Preset Value

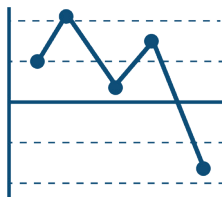## Gauge Head Add on Software

DGK 10x

The 10k scanning option upgrades the standard gauge to enable a high scan rate that can be used for effective flaw and defect detection, each scan takes just 1ms to obtain and output a new diameter reading.
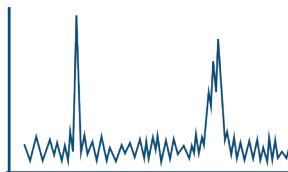
Statistics

Maximum, Minimum, Mean, Standard Deviation, Cp, Cpk is collected during a selectable time or length period. The results are updated on the SiDi CD14 Universal Display, PGIS Software and can be transmitted digitally.
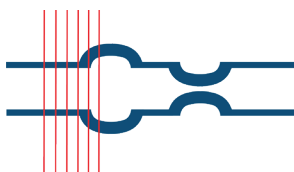
SPC

Statistical Process Control (SPC) enhances the Feedback Control option. Statistical Process Control, "measures" Process Capability and automatically adjusts the control set point to maximize material savings while maintaining control within upper and lower limits

FFT Analysis

Fast Fourier Transform (FFT) analyzes the diameter data for periodicity. Providing Amplitutde verses Frequency data and a graphical representation on the SiDi CD14 Universal Display Unit or PCIS Software.

SMFD

Single Measurement Flaw Detection (SMFD) analyzes each individual measurement and compares it with the running average. If a Single Measurement is greater than the running average and above a threshold value a Flaw is Detected.
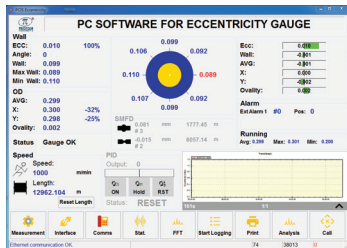
Accessories

Display

CDi4
Part No. 00049MC021

CDi4 Panel Mount
Part No. 00049MC043

CAN 9DD Cable
Part No. Length Dependent
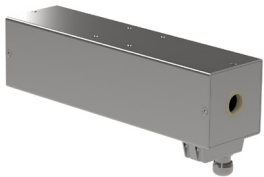
PCIS EG
Part No.

USB-RS232_1.8m Cable
Part No. GP00000624

Proton MDIS
Part No.

Inductor

Induction Tube
Part No. 00056MC216

Induction Tube Driver
Part No. 00056MC210

Induction Tube Cable
Part No. 00056CB004

EG Signal Control Cable
Part No. 00056CB001

Induction Tube Mounting Kit
Part No. 00056MC022

HST3
Part No. 00009MC550

Accessories

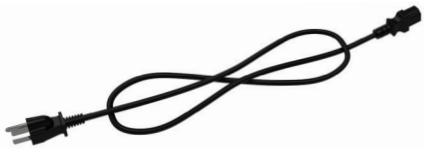**Induction Tube Driver Mounting Kit**
Part No. 00056MC023

BOB DGK
Part No. 00047MC662

BOB 25PIN Cable
Part No. 00041CT003

Power

Mains Cable
Part No. 00002CM502

Mains Cable (USA)
Part No. 00047MC917

Alarm & Report

A1 Alarm Unit
Part No. 00025MC001

M16AP Cable
Part No. 00025CB003

Zebra Label Printer
Part No. 00043MC033

RS232 9DD Cable
Part No. Length Dependent

Locations

USA HEAD OFFICE:

Proton Producst Inc.
1590 S Coast Hwy, Unit 13
Laguna Beach, CA 92651
United States
E-mail: sales@protonproducts.us

GLOBAL HEAD OFFICE:

Proton Products International Ltd.
10 Aylesbury End,
Beaconsfield Buckinghamshire
England
Email: sales@protonproducts.com

ASIA HEAD OFFICE:

Proton Products Chengdu Ltd.
Tianfu Software Park G3-401,
No.1800 Central YiZhou Avenue,
Chengdu, Sichuan 610041
China
E-mail: sales@protonproducts.cn

EUROPEAN HEAD OFFICE:

Proton Products Europe N.V.
Terspelt Business Park
Koeweideblock 2/C13
B-1785 Merchtem
Belgium
E-mail: sales@protonproducts.eu

π

PROTON

P R O D U C T S