Netzer

PRODUCT CATALOG

ABSOLUTE ROTARY ENCODERS

MOVING PRECISELY WITH YOU.

OUR COMPANY

Since 1998, Netzer Precision Position Sensors has been designing, manufacturing, and supplying top-tier absolute position rotary encoders, utilizing the innovative Electric Encoder™ technology.

The company provides both standard off the shelf products and CustomFit designs to meet customer specifications. Our digital Electric Encoder™ technology is renowned for its high performance and is widely employed across diverse global applications.

The Netzer product line encompasses a variety of rotary encoders tailored for applications spanning defense and harsh environments, industrial automation, collaborative and medical robotics, unmanned vehicles, aerospace, and special low orbit and deep space missions.

The unique contactless core of the Electric Encoder, featuring a “hollow shaft” design, minimizes axial space requirements and enhances reliability by eliminating degradation mechanisms.
Key features include zero magnetic signature, immunity to EMI/RFI and magnetic fields, lightweight construction, low inertia, and a slim profile.

Netzer Precision Position Sensors has evolved cutting-edge position sensing encoder technology, originally designed for demanding environments, into a versatile solution that meets the varied requirements of industries such as defense, homeland security, aerospace, and motion control instrumentation. Our range of standard and customized electric rotary encoders also serves applications in medical, automotive, and other diverse fields.

NETZER ENCODERS ARE COMPOSED OF 2 PCB PLATES

- Transceiver Stator
- Passive Rotor

The system determines position through dynamic variations in capacitance within a modulated electric field generated between these plates. This modulated field is precisely processed and converted into a DC output signal proportional to the sine and cosine components of the rotor’s angular position.

Unlike traditional encoders that rely on selective scale scanning, Netzer Encoders utilize a ground-breaking approach, performing continuous 360° scanning of the rotor’s entire circumference and capturing all electrical count revolutions concurrently. This comprehensive scanning and real-time signal averaging deliver unparalleled precision and robustness, ensuring significant performance advantages across diverse applications.

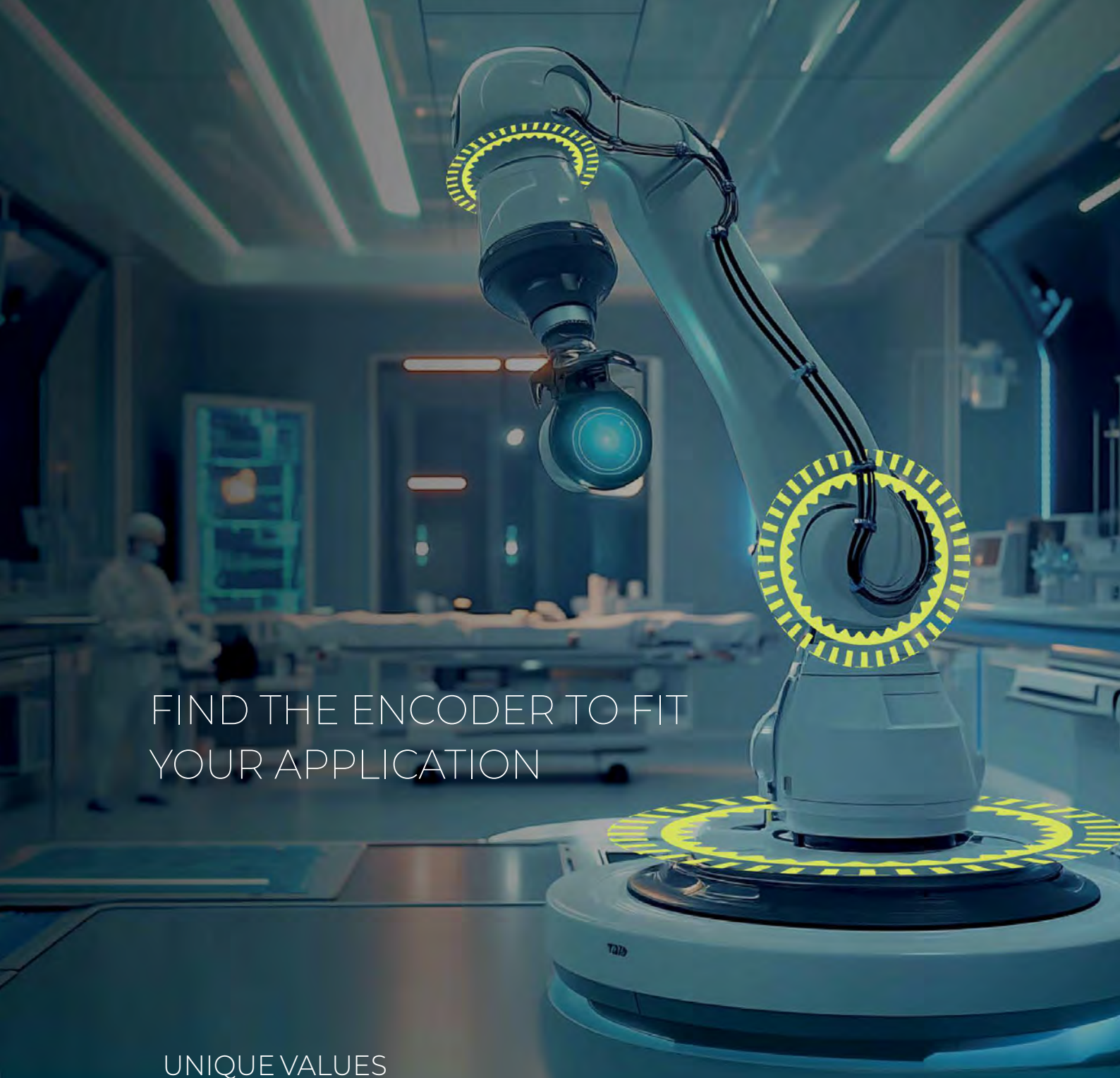
THE ABSOLUTE ROTARY ENCODER'S FEATURES

FUNCTIONAL
- Accurate Absolute Position
- High Resolution
- Smooth Speed Control
- Temperature Compensation

STRUCTURAL
- Low Profile
- Hollow Shaft
- Floating Rotor
- Low Weight & Inertia

ENVIRONMENTAL
- Extreme Temperatures
- Shock and Vibration Tolerance
- Tolerance to EMI / RFI
- Immunity to Magnetic Fields

CERTIFICATIONS



FIND THE ENCODER TO FIT YOUR APPLICATION

UNIQUE VALUES

- HIGH PRECISION
- LOW PROFILE
- HOLLOW SHAFT
- IMMUNITY TO MAGNETIC FIELDS
- REPEATABILITY
- CONTACT LESS
- SMALL SIZE
- LIGHT WEIGHT

ABSOLUTE ROTARY ENCODER

VLP - HARSH ENVIRONMENT

The Netzer VLP family of absolute rotary encoders leads the market with ultra-thin, lightweight designs built for extreme conditions. Using contactless capacitive sensing, they deliver high-resolution, wear-free precision for aerospace, robotics, and automation. Their hollow shaft, low-inertia structure enhances performance while reducing system weight.

From the compact VLP-13 to the high-accuracy VLP-247, each model meets demanding motion control needs.

Designed for seamless integration, the VLP series redefines reliability and precision in harsh environments.

PERFORMANCE

Accuracy	Repeatability	Position Values/ Resolution	Technology	RPM
Up to 0.006 deg	Up to .007 deg	Up to 8,388,608 (23 bit)	Capacitive	Up to 6000 rpm

SIZE

Outer Diameter	Inner Diameter	Weight	Height	Eccentricity + Airgap tolerance
13.5-247mm	0-171mm	8-220 g	6-9mm	Up to ±0.3 mm

ENVIRONMENTAL

Temperature	Shock	Vibration	Relative Humidity	MTBF	EMC
-40°C to +105°C	IEC 60068-2-27:2009 100g for 6 ms	20 to 2000 Hz per MIL-810G Category 24	98% condensation	15 years	IEC 6100-6-2 IEC 6100-6-4

COMMUNICATION

ELECTRICAL

Communications	Position Sampling Rate	Power Consumption	Power Supply	Built In Test
SSi, Biss ® C	35 kHz / 375 kHz	~90-110 mA	5v ±5%	Optional

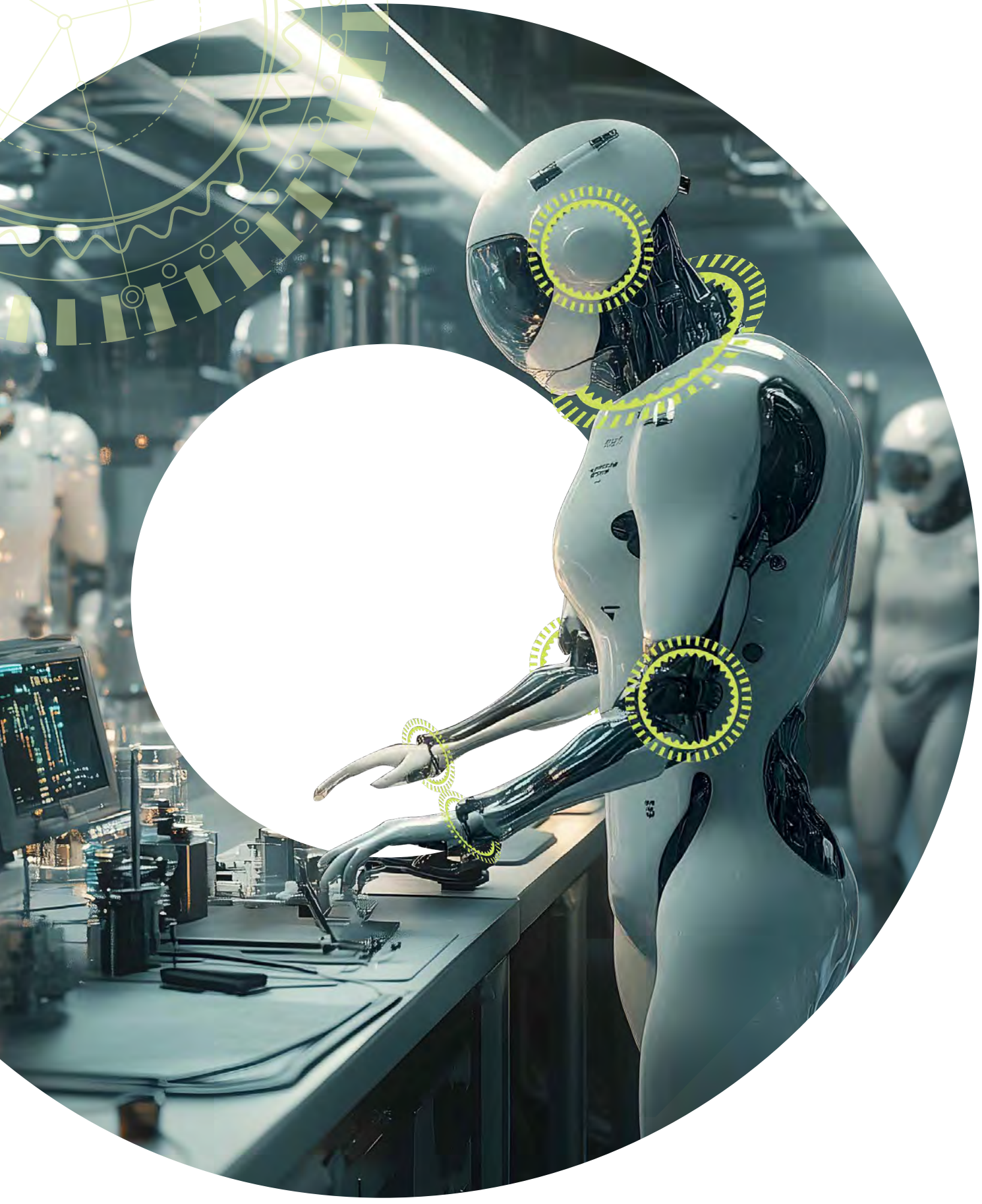
UNIQUE VALUES

HIGH PRECISION

LOW PROFILE

HOLLOW SHAFT

IMMUNITY TO MAGNETIC FIELDS



ABSOLUTE ROTARY ENCODER

VLX - ROBOTICS & INDUSTRY

The Netzer VLX family of absolute rotary encoders is built for industrial and robotics automation, delivering high-precision motion control in a compact, ultra-thin form. Using contactless capacitive sensing technology, these encoders ensure wear-free, long-term reliability in high-performance systems. Their hollow shaft, low-inertia design enhance efficiency, reduce system weight, and optimize dynamic response.

From the miniature VLX-25 to the high-accuracy VLX-247, each model meets the growing need for compact yet powerful rotary feedback.

Designed for seamless integration, the VLX series sets a new benchmark for precision, durability, and efficiency in automation.

PERFORMANCE

Accuracy	Repeatability	Position Values/ Resolution	Technology	RPM
Up to 0.006 deg	Up to .007 deg	Up to 8,388,608 (23 bit)	Capacitive	Up to 6000 rpm

SIZE

Outer Diameter	Inner Diameter	Weight	Height	Eccentricity + Airgap tolerance
25-247mm	2.2-171mm	8-220 g	6-10.7mm	Up to ±0.3 mm

ENVIRONMENTAL

Temperature	Shock	Vibration	Relative Humidity	MTBF	EMC
-40°C to +85°C	IEC 60068-2-27:2009 100g for 6 ms	20 to 2000 Hz per MIL-810G Category 24	98% condensation	15 years	IEC 6100-6-2 IEC 6100-6-4

COMMUNICATION

ELECTRICAL

Communications	Position Sampling Rate	Power Consumption	Power Supply	Built In Test
SSi, Biss ® C	35 kHz / 375 kHz	~90-110 mA	5v ±5%	Optional

UNIQUE VALUES

- HIGH PRECISION
- LOW PROFILE
- HOLLOW SHAFT
- IMMUNITY TO MAGNETIC FIELDS

ABSOLUTE ROTARY ENCODER

VLA - ANALOG

The Netzer VLA family of absolute rotary encoders delivers high-speed analog output with zero-latency performance for aerospace, and defense. Using contactless capacitive sensing, they provide a precise, wear-free alternative to resolvers with long-term reliability. Their hollow shaft, low-inertia design enhances dynamic response and system efficiency.

From the compact VLA-80 to the high-precision VLA-247 and semiconductor, each model integrates seamlessly into advanced motion platforms.

The VLA series redefines real-time motion control with unmatched accuracy and performance.

PERFORMANCE

Accuracy	Repeatability	Technology	RPM
Up to 0.01 deg	Up to 0.0014 deg	Capacitive	Up to 1000 rpm

SIZE

Outer Diameter	Inner Diameter	Weight	Height	Eccentricity + Airgap tolerance
80-247mm	35-171mm	90 g	8mm	Up to ±0.1 mm

ENVIRONMENTAL

Temperature	Shock	Vibration	Relative Humidity	MTBF	EMC
-45°C to +85°C	IEC 60068-2-27:2009 100g for 6 ms	20 to 2000 Hz per MIL-810G Category 24	98% condensation	15 years	IEC 6100-6-2 IEC 6100-6-4

COMMUNICATION

ELECTRICAL

Communications	Power Consumption	Power Supply
SINE/COSINE	~50 mA	5v ±5%

UNIQUE VALUES

HIGH PRECISION

LOW PROFILE

HOLLOW SHAFT

IMMUNITY TO MAGNETIC FIELDS

ABSOLUTE ROTARY ENCODER

VLT - EXTREME TEMPERATURE + 125°C

The Netzer VLT family of absolute rotary encoders is designed for extreme environments, offering high-precision motion control with an extended temperature range of -55°C to 125°C. Using contactless capacitive sensing, they ensure wear-free, long-term reliability for aerospace, defense, robotics, and industrial applications. Their hollow shaft, low-inertia design enhances integration, reduces system weight, and optimizes dynamic response.

Built to withstand harsh conditions, the VLT series delivers stable, high-resolution feedback in mission-critical systems.

From precision automation to aerospace controls, these encoders set a new standard for durability and performance.

PERFORMANCE

Accuracy	Repeatability	Position Values/ Resolution	Technology	RPM
Up to 0.006 deg	Up to .007 deg	Up to 8,388,608 (23 bit)	Capacitive	Up to 6000 rpm

SIZE

Outer Diameter	Inner Diameter	Weight	Height	Eccentricity + Airgap tolerance
25-247mm	2.2-171mm	8-220 g	6-9mm	Up to ±0.3 mm

ENVIRONMENTAL

Temperature	Shock	Vibration	Relative Humidity	MTBF	EMC
-55°C to +125°C	IEC 60068-2-27:2009 100g for 6 ms	20 to 2000 Hz per MIL-810G Category 24	98% condensation	15 years	IEC 6100-6-2 IEC 6100-6-4

COMMUNICATION

ELECTRICAL

Communications	Position Sampling Rate	Power Consumption	Power Supply	Built In Test
SSi, Biss ® C	35 kHz / 375 kHz	~90-110 mA	5v ±5%	Optional

UNIQUE VALUES

HIGH PRECISION

LOW PROFILE

HOLLOW SHAFT

IMMUNITY TO MAGNETIC FIELDS

ABSOLUTE ANGLE ENCODER

VLZ - ANGLE ENCODER

Breaking Boundaries – Redefining Performance
For too long, high-end optical encoders have set the bar– until now. VLZ is rewriting the rules with cutting-edge capacitive technology, delivering unprecedented 1 milli-degree accuracy without the sensitivity of optics. With contactless operation, EMI and Magnetic field resistance, and unbeatable durability in harsh environments, VLZ thrives where others fail.

Installation is effortless, both surface mount or "Bearing like" configurations, making high precision positioning more accessible than ever.
The future isn't optical - it's VLZ.

From Rotary stages and Tilting beds of milling centres to High-end Semiconductor equipment under vacuum, VLZ brings next-level precision with unique features and capabilities never seen before. Whether in the factory, lab or beyond.

PERFORMANCE

Accuracy	Repeatability	Position Values/ Resolution	Latency	RPM
±3 ArcSec	±1 ArcSec	67,108,869 (26 bit)	< 1µs	Up to 6000 rpm

SIZE

Outer Diameter	Inner Diameter	Weight	Height	Eccentricity + Airgap tolerance
105-175mm	48-110mm	175-290 g	12.5mm	Up to ±0.3 mm

ENVIRONMENTAL

Temperature	Shock	Vibration	Relative Humidity	MTBF	EMC
-45°C to +85°C	IEC 60068-2-27:2009 100g for 6 ms	20 to 2000 Hz per MIL-810G Category 24	98% condensation	15 years	IEC 6100-6-2 IEC 6100-6-4

COMMUNICATION

Communications
SSi, Biss ® C, AqB, SPI, RS485

UNIQUE VALUES

HIGH PRECISION

LOW PROFILE

HOLLOW SHAFT

IMMUNITY TO MAGNETIC FIELDS

ABSOLUTE ROTARY ENCODER

VLS - LEO - SPACE / SEMICONDUCTOR

The Netzer VLS family is the only COTS semicom and Space absolute rotary encoder, delivering high-precision motion control for aerospace, satellites, and LEO applications. Using contactless capacitive sensing, it ensures wear-free, long-term reliability in extreme environments. Its hollow shaft, low-inertia design optimizes dynamic response while reducing system weight.

From the compact VLS-25 to the high-accuracy VLS -247, each model meets the rigorous demands of space and semiconductor missions.

The VLS series sets the industry benchmark for proven, high-reliability semiconductor/space-grade encoders.

SPACE PERFORMANCE

Radiation	SEE	Low out-gassing	Cable	Material
TID = 30KRAD	1E11 p/cm²/s protons @200MeV	TML < 1%, CVCM < 0.1%	ESA standard	Polyimide + Parylene conformal coating

PERFORMANCE

Accuracy	Repeatability	Position Values/ Resolution	Technology	RPM
Up to 0.006 deg	Up to .007 deg	Up to 8,388,608 (23 bit)	Capacitive	Up to 6000 rpm

SIZE

Outer Diameter	Inner Diameter	Weight	Height	Eccentricity + Airgap tolerance
25-247mm	2.2-171mm	8-220 g	6-9mm	Up to ±0.3 mm

ENVIRONMENTAL

Temperature	Shock	Vibration	Relative Humidity	MTBF	EMC
-55°C to +125°C	IEC 60068-2-27:2009 100g for 6 ms	20 to 2000 Hz per MIL-810G Category 24	98% condensation	15 years	IEC 6100-6-2 IEC 6100-6-4

COMMUNICATION

ELECTRICAL

Communications	Position Sampling Rate	Power Consumption	Power Supply	Built In Test
SSi, Biss ® C	35 kHz / 375 kHz	~90-110 mA	5v ±5%	Optional

UNIQUE VALUES

- RESISTANCE TO COSMIC RADIATION
- HIGH PRECISION
- EXTENDED TEMP RANGE
- SPACE TESTED
- MTBF 15 YEARS

ABSOLUTE ROTARY ENCODER

VLM - MULTI TURN

The Netzer VLM family is a true multiturn absolute rotary encoder, delivering high-resolution feedback with exceptional precision. Using contactless capacitive sensing, it ensures wear-free, long-term reliability for aerospace, robotics, and advanced automation. Its hollow shaft, low-inertia design enhances integration, reduces system inertia, and improves efficiency. With ultra-thin, lightweight construction, the VLM provides multiturn capabilities without adding system complexity.

The VLM series sets a new standard for compact, high-performance rotary feedback solutions.

PERFORMANCE

Accuracy	Repeatability	Resolution + multiturn	Technology	RPM
Up to 0.01 deg	Up to 0.0014 deg	single + multi up to 32 bit	Capacitive	4000 rpm

SIZE

Outer Diameter	Inner Diameter	Weight	Height	Eccentricity + Airgap tolerance
60mm	25mm	15 g	8mm	Up to ±0.1 mm

ENVIRONMENTAL

Temperature	Shock	Vibration	Relative Humidity	MTBF	EMC
-40°C to +80°C	40 g for 11 ms	20 to 2000 Hz per MIL-810G Category 24	98% condensation	15 years	IEC 6100-6-2 IEC 6100-6-4

COMMUNICATION

ELECTRICAL

Communications	Position Sampling Rate	Power Consumption	Power Supply	Built In Test
SSi, Biss ® C	35 kHz	100 mA	5v ±5%	Optional

UNIQUE VALUES

MULTI TURN

HIGH PRECISION

LOW PROFILE

HOLLOW SHAFT

IMMUNITY TO MAGNETIC FIELDS

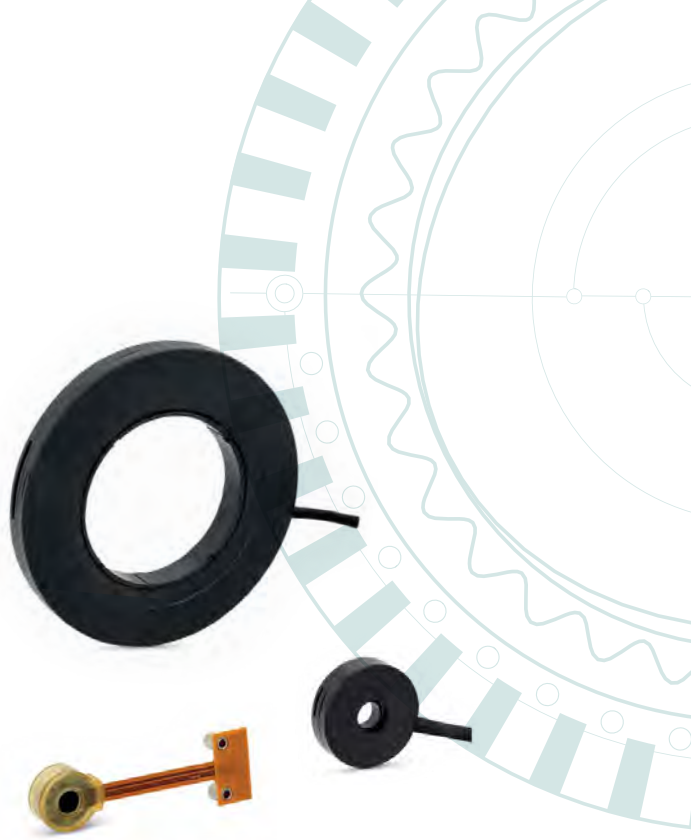
ABSOLUTE ROTARY ENCODER

DS - ENCAPSULATE

The Netzer DS family is a field-proven solution trusted by industries that demand the highest levels of precision and reliability. With years of operational success, these encoders have earned a reputation for durability and accuracy in mission-critical environments.

Engineered for aerospace, defense, robotics, and industrial automation, the DS series delivers unmatched performance with advanced contactless technology.

Built to withstand harsh conditions, these encoders provide long-term stability and seamless integration into complex motion systems. When reliability is non-negotiable, the Netzer DS family sets the standard.



PERFORMANCE

Accuracy	Repeatability	Position Values/ Resolution	Technology	RPM
Up to 0.006 deg	Up to .0007 deg	Up to 8,388,608 (23 bit)	Capacitive	Up to 4000 rpm

SIZE

Outer Diameter	Inner Diameter	Weight	Height	Eccentricity + Airgap tolerance
16-130mm	4-90mm	3.1-84 g	7-10.5mm	Up to ±0.1 mm

ENVIRONMENTAL

Temperature	Shock	Vibration	Relative Humidity	MTBF	EMC
-40°C to +85°C	100 g for 11 ms / 40g 11ms (per MIL-STD-810G)	20 to 2000 Hz per MIL-810G Category 24	98% condensation	15 years	IEC 6100-6-2 IEC 6100-6-4

COMMUNICATION

ELECTRICAL

Communications	Position Sampling Rate	Power Consumption	Power Supply	Built In Test
SSi, Biss ® C	35 kHz / 375 kHz	~100 mA	5v ±5%	Optional

UNIQUE VALUES

- SMALL SIZE
- HIGH PRECISION
- LOW PROFILE
- HOLLOW SHAFT
- IMMUNITY TO MAGNETIC FIELDS

ABSOLUTE ROTARY ENCODER

DL - SHAFT ENCODER ALLOY ENCAPSULATED

The Netzer DL family of absolute rotary encoders delivers high-precision shafted solutions for aerospace, robotics, and industrial automation. With contactless capacitive sensing, they provide reliable, wear-free operation in demanding motion control applications. Their robust shafted design ensures seamless integration, stable feedback, and long-term durability.

Engineered to resist EMI, RFI, and magnetic interference, they maintain exceptional performance in harsh environments.

From the compact DL-25 to the high-accuracy DL-66, each model offers precision positioning with unmatched reliability.

PERFORMANCE

Accuracy	Repeatability	Position Values/ Resolution	Technology	RPM
Up to 0.005 deg	Up to .014 deg	Up to 4,194,304 (22 bit)	Capacitive	Up to 4000 rpm

SIZE

Outer Diameter	Shaft	Weight	Height (without shaft)	Starting torque
25-95mm	4-8mm	30-350 g	25-77.6mm	30 x 10-4 N.m

ENVIRONMENTAL

Temperature	Shock	Vibration	Protection	MTBF	EMC
-40°C to +85°C	100 g for 11 ms	20 to 2000 Hz per MIL-810G Category 24	IP 65	15 years	IEC 6100-6-2 IEC 6100-6-4

COMMUNICATION

ELECTRICAL

Communications	Position Sampling Rate	Power Consumption	Power Supply	Built In Test
SSi, Biss ® C	35 kHz / 375 kHz	~90 mA	5v ±5%	Optional

UNIQUE VALUES

SHAFT

HIGH PRECISION

DURABILITY

IMMUNITY TO MAGNETIC FIELDS

Netzer

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