



Smart encoders & actuators



Heavy duty encoders, Oil & Gas 

# Tough encoders for rough jobs, reliable and accurate, at any time



## Absolute encoder, Inclinometer

XAC77 series, IXB series

- Crane jig position
- Crane tower inclination



## Incremental encoder

XC77 series ATEX

- Top drive motor feedback
- Draw-works motor feedback



## Bearingless/Frameless encoders

SMRA series

- For large diameters
- Underwater operation (IP68)
- Custom applications



## Safety motion controller

IFS10

- Over/under-speed
- Still stand
- Direction

Heavy-duty encoders are born out of Lika's extensive experience in a variety of tricky on & off-shore sectors such as:

- Oil & gas, Off-shore facilities
- Marine energy, marine installations
- On/Off-shore wind turbines
- Draw-works
- Shipbuilding industry, heavy vehicles & construction machinery
- Mining industry, iron and steel mills

Heavy-duty encoders are **designed to cope with the harshest environments** and the roughest applications and built to last. Reliable and solid design, rugged mechanics, high-quality components, appropriate surface treatments and coatings, hermetically sealed housing: they each and together are the **key features for dependable enduring service.**



### Incremental encoders

I116, C100 series

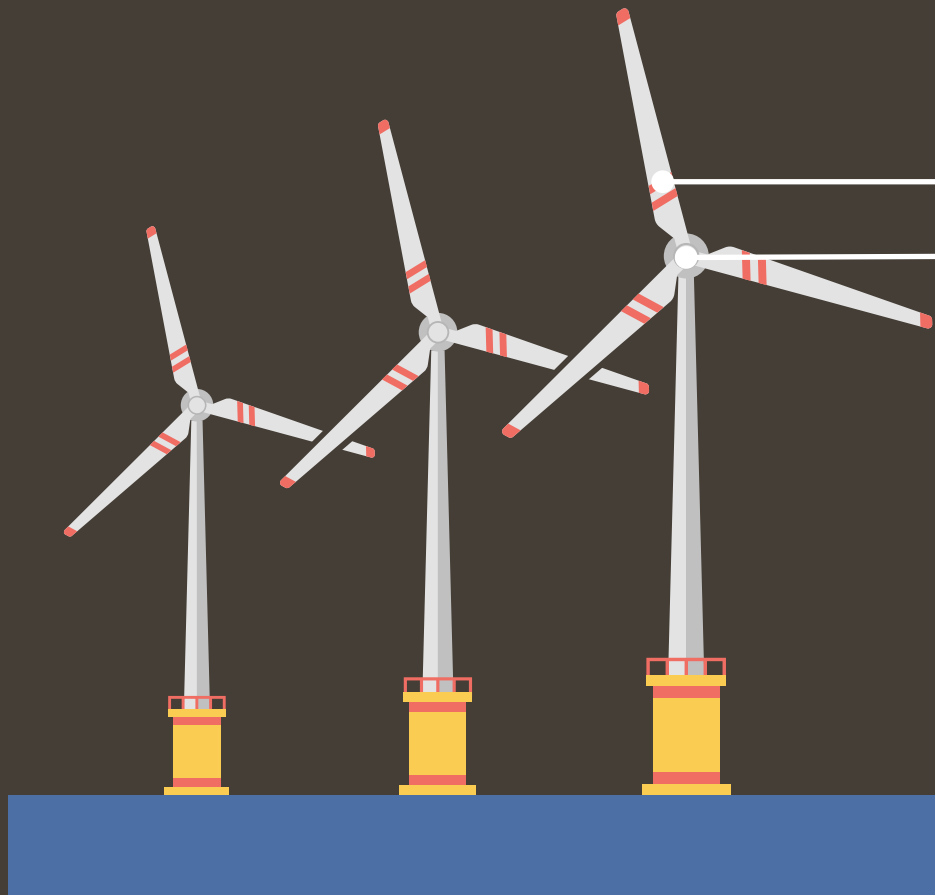
- Crane winch motor
- ATEX 2/22 zone



### Absolute encoders

MH58S, EM58 series

- Pitch control
- Yaw control



### Incremental encoder

I115, C100 series

- Mud pump motor feedback
- Other motor applications



### Incremental encoders

C100, I115 series

- Generator feedback
- Rotor speed control



# ATEX certified encoders

Lika Electronic has developed a comprehensive range of ATEX certified encoders: **XC77** series, **XAC77** series and **XAC77 FB**. They are designed to cover a wide variety of critical applications in hazardous and harsh areas "in which explosive atmospheres caused by gases, vapours, mists or air/dust mixtures are likely to occur occasionally" (**category 2 encoders**) and "in which explosive atmospheres caused by gases, vapours, mists, or air/dust mixtures are unlikely to occur or, if they do occur, are likely to do so only infrequently and for a short period only" (**category 3 encoders**).

- **XC77 incremental ATEX encoder**, zones 1/21, 2/22  
Universal output circuit  
up to 10000 PPR resolution
- **XAC77 absolute ATEX encoder**, zones 1/21, 2/22  
SSI, analogue, Profibus, CANopen interfaces  
Single & multiturn version
- **XAC77 FB absolute ATEX encoder**, zones 2/22  
Profinet, EtherCAT, Powerlink, Modbus, Profibus, CANopen  
Single & multiturn version

## Category 2 encoders for zones 1, 2, 21, 22

XC77 and XAC77 series ATEX certified encoders are "high protection" category 2 compliant encoders: they provide an airtight, explosion-proof and flameproof enclosure and high ignition protection level against both gas and dust explosive atmospheres and are intended for use in Zones 1, 2, 21 and 22 and in the temperature class T6 (T85°C).

## Category 3 encoders for zones 2, 22

XAC77 FB series ATEX certified encoders are the fieldbus and Ethernet absolute encoders designed to provide "normal protection" in potentially explosive atmospheres (category 3) and are allowed to be used in Zones 2 and 22 and in the temperature class T5 (T100°C).



# Modular and contactless for large diameters

Lika Electronic also offers a comprehensive range of incremental and absolute **bearingless modular encoders**. Thanks to contactless magnetic sensing no parts are subject to wear and fatigue and grant immunity to dirt, contaminants, vibrations and mechanical stresses.

- **SMRA + MRA/130 absolute ring encoder**
- **SMLA + MRA/262 segmented ring encoder**
- **SRDH5 + MT50 Tape ring encoder**

Three different designs offer a solution for any kind of application requirement on large shafts:

- **Magnetic ring** encoders
- **Segmented rings** for shafts with limited access
- **Tape based ring encoders** for **virtually infinite diameters**





## First-rate components for failure-free operation

Shaft encoders mount **large size double ball bearings**: they are suitably spaced out in the shaft and capable of handling the most severe applications affected by heavy mechanical stresses, shocks, vibrations and high axial (up to 270 N) and radial (up to 350 N) shaft loads.

The bearings and shaft can be **electrically insulated** to provide insensitivity to eddy currents in the drive shaft (up to 10 kV).

Whatever your pick, you can rely on first-rate components for dependable and maintenance-free enduring service.

To improve reliability and further increase safety of data exchange the range includes redundant encoders with separate sensors and/or independent galvanically separated double output circuits, power supply and wiring.

Dual encoders, having two independent encoders in a single package are available with also separate and reversible terminal block connections.



- **C100/C101 incremental hollow shaft encoders**  
Single or redundant version  
Surface (salt spray) protection  
Isolated ball bearings
- **I115/I116 incremental solid shaft encoder**  
Single or redundant version  
Surface (salt spray) protection  
Terminal block connections

## Tough, whatever the conditions

Heavy-duty encoders are designed to cope with extreme and aggressive environments.

They mount **rugged enclosures made of aluminium or stainless steel** with oversized frame walls and ball bearings.

Special surface treatments and sealing can be added to ensure safe protection against salt water corrosion, cleaning agents and chemical contaminants.

The protection rate is up to IP69K.



- **I58SK incremental solid shaft encoder**  
Stainless steel housing  
Resolution up to 10000 PPR  
Programmable version on request
- **AM58K absolute fieldbus encoder**  
Stainless steel housing  
Profinet, EtherCAT, Powerlink, Modbus, Profibus, CANopen, Devicenet interfaces

# Safety is not an option!

If encoders need to be integrated into systems requiring up to SIL3/PLe Functional Safety Level, Lika Electronic offers the family of IFS-10 safety controllers

**IFS-10 safety motion controllers** are designed for to monitor the speed (under- & overspeed), standstill and direction of crane hoists or other motors.

The controller can be connected to any of our heavy-duty or ATEX standard encoders.

A **signal splitter** function allows to bring a **safe encoder output** to a third controller monitoring other functions.

Lika also offers a range of standard **signal converters, signal splitters, interpolators and SSI-to-Ethernet gateways** to suit specific needs in many industries and applications.



- 2 incremental encoder or sensor inputs  
programmable analogue output  
signal splitter output  
Removable set-up panel

## Inclination sensors

When it comes to dependable and accurate **angle measurement of inclination (pitch and roll) and rotational movements** in rough industrial environments such as construction vehicles, agricultural machinery, mobile cranes, forklifts, bucket trucks, mowers, marine installations and more, the new **IX single and**

**dual axis inclinometer series with analogue and CANopen interfaces is the perfect choice.**

The robust construction with metal enclosure and resin-coated electronics allows for high protection and safe operation in harsh environments.



- IXA1, IXA2 1 or 2 axes analogue output  
IXB high accuracy CANopen interface, 1 or 2 axes
- IXC1, IXC2 1 or 2 axes CANopen interface  
programmable antivibration filter





## Strong bearings

Shaft encoders mount **large size double ball bearings**: they are suitably spaced out in the shaft and capable of handling the most severe applications affected by heavy mechanical stresses, shocks, vibrations and high axial (up to 270 N) and radial (up to 350 N) shaft loads. The bearings and shaft can be **electrically insulated**

to provide insensitivity to eddy currents in the drive shaft (up to 10 kV).

Whatever your pick, you can rely on first-rate components for dependable and maintenance-free enduring service.

## Robust output circuits for long transmission lines

Safe and dependable signal transmission at high counting frequency is granted even over long distances greater than 300 m (984.3 ft) thanks to high-performance **Power Push-Pull and Power Line Driver** output circuits: they considerably reduce quality degradation or loss of signals on long cable runs for maximum reliability without the need for repeaters and amplifiers. In addition Lika Electronic provides **optical fiber modules** (IF60 series) for robust, safe and reliable transmission of incremental and

SSI absolute encoder signals over very long distances up to 3,000 m (3,281 yd).

Optical fiber lines permit faster transmission at high bandwidths and are immune to electromagnetic (EMI) and radio frequency (RFI) interference, adverse temperature and moisture conditions. Furthermore because optical cables carry no current they are **safe to use in hazardous and explosive environments** and eliminate the risks of short circuits.

## Resistance to extremes

The range of heavy-duty encoders includes both optoelectronic and magnetic measuring technologies.

On request magnetic encoders can be provided with fully resin-coated or overmoulded circuits in order to withstand the harshest

environments or even operate under water.

High quality components allow large temperature fluctuations from -40°C up to +100°C (-40°F +212°F).

## Fieldbus connectivity

EtherCAT<sup>®</sup>

Modbus

ETHERNET  
POWERLINK

DeviceNet<sup>™</sup>

PROFI<sup>®</sup>  
BUS

PROFI<sup>®</sup>  
NET

CANopen<sup>®</sup>



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