

The VLX-64 is a member of the VLX / DX series of Electric Encoders™, based on Netzer Precision proprietary technology. The Electric Encoder™ offers many advantages - some unparalleled for the industrial automation market.

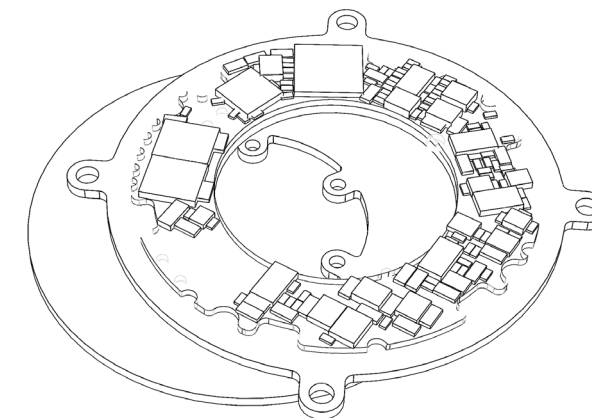
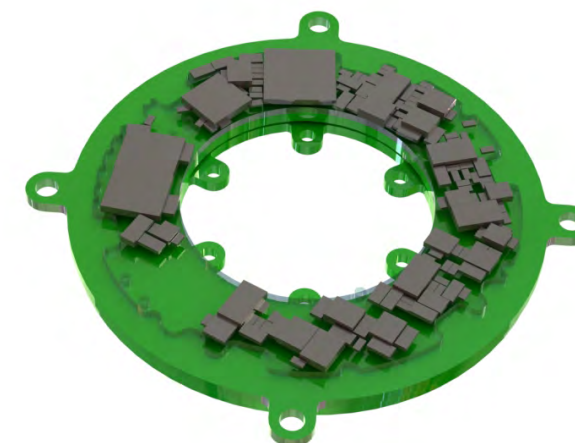
- Low profile (6 mm)
- Hollow, floating shaft
- Absolute position
- No bearings or other contacting elements
- High resolution and precision
- High tolerance to temperature extremes, shock, moisture, EMI, RFI and Magnetic fields
- Very low weight
- Holistic signal generation
- Digital interfaces

The Electric Encoder™ is unique in being holistic, i.e., its output reading is the averaged outcome of the whole area of the rotor. This feature makes the Electric Encoder™ forgiving to mounting tolerances, mechanical wander etc.

The absence of components such as ball bearings, flexible couplers, glass disc, light sources and detectors, along with very low power consumption makes the Electric Encoder™ virtually failure free.

The internally shielded, DC operated Electric Encoder™ includes an electric field generator, a field receiver, a sinusoidal shaped dielectric rotor, and processing electronics.

The output of Electric Encoder™ is a digital serial with absolute position single turn. The combination of precision, low profile, low weight and high reliability have made Netzer Precision encoders particularly suitable to a wide variety of industrial automation applications.



## General

Angular resolution	18 bits ; 262,144 CPR
Maximum tested static error	≤ 0.030°
Maximum operational speed	1,500 rpm
Measurement range	Unlimited rotation
Rotation direction	Adjustable CW/CCW*
Position measurement	Absolute, single turn

\* Default same direction from bottom side of the encoder

## Mechanical

Allowable mounting eccentricity	±0.1 mm
Allowable rotor axial motion	±0.1 mm
Rotor inertia	5,652 gr · mm <sup>2</sup>
Total weight	20 gr
Outer Ø /Inner Ø/ Height	64 / 34 / 6 mm
Material (stator, rotor)	FR4
Nominal air gap (stator, rotor)	0.6 mm

## Electrical

Supply voltage	5V ± 5%
Interconnection	Connector

## Environmental

Operating temperature range	-25°C to +65°C
Storage temperature	-40°C to +100°C
Relative humidity	98% Non condensing
Shock endurance	100 g for 11 ms
Vibration endurance	20 g 10 – 2000 Hz

Sold & Serviced By:

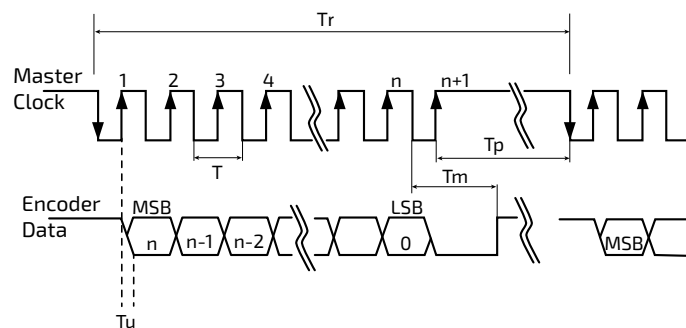
**ELECTROMATE**  
Canadian and International Sales  
877-737-8698  
sales@electromate.com  
www.electromate.com

**SERVO2GO.com**  
U.S. Sales  
877-378-0240  
sales@servo2go.com  
www.servo2go.com

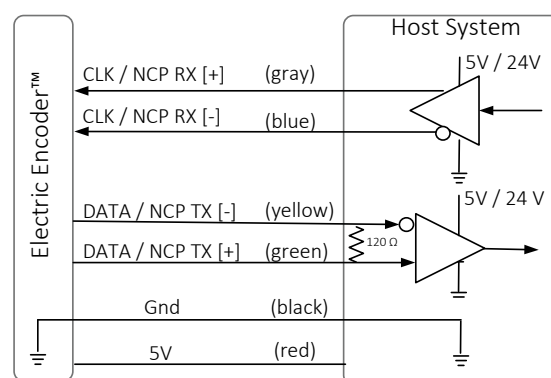


## Digital SSI Interface

Synchronous Serial Interface (SSI) is a point to point serial interface standard between a master (e.g. controller) and a slave (e.g. sensor) for digital data transmission.



	Description	Recommendations
n	Total number of data bits	12 - 22
T	Clock period	
f= 1/T	Clock frequency	0.5 - 2.0 MHz
Tu	Bit update time	200 nsec
Tp	Pause time	26 - ∞ μsec
Tm	Monoflop time	>25 μsec
Tr	Time between 2 adjacent requests	Tr > n*T+26 μsec
fr=1/Tr	Data request frequency	



## SSI / BiSS output signal parameters

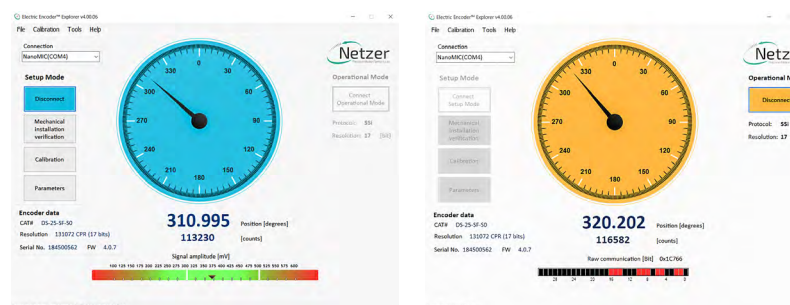
Output code	Binary
Serial output	Differential RS-422
Clock	Differential RS-422
Clock Frequency	0.5 ÷ 2.0 MHz
Position update rate (Max)	30 KHz
Current consumption	180 mA

## SSI / BiSS interface wires color code

Clock +	Grey	Clock
Clock -	Blue	
Data -	Yellow	Data
Data +	Green	
GND	Black	Ground
+5V	Red	Power supply

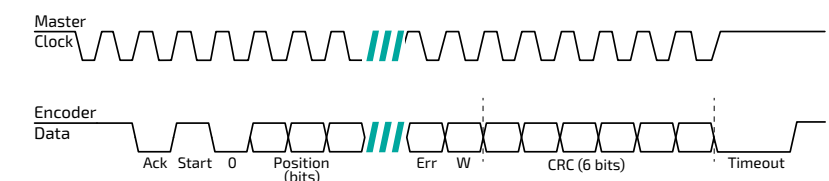
## Software tools: (SSI / BiSS - C)

Advanced calibration and monitoring options are available by using the factory supplied [Electric Encoder Explorer software](#). This facilitates proper mechanical mounting, offsets calibration and advanced signal monitoring.



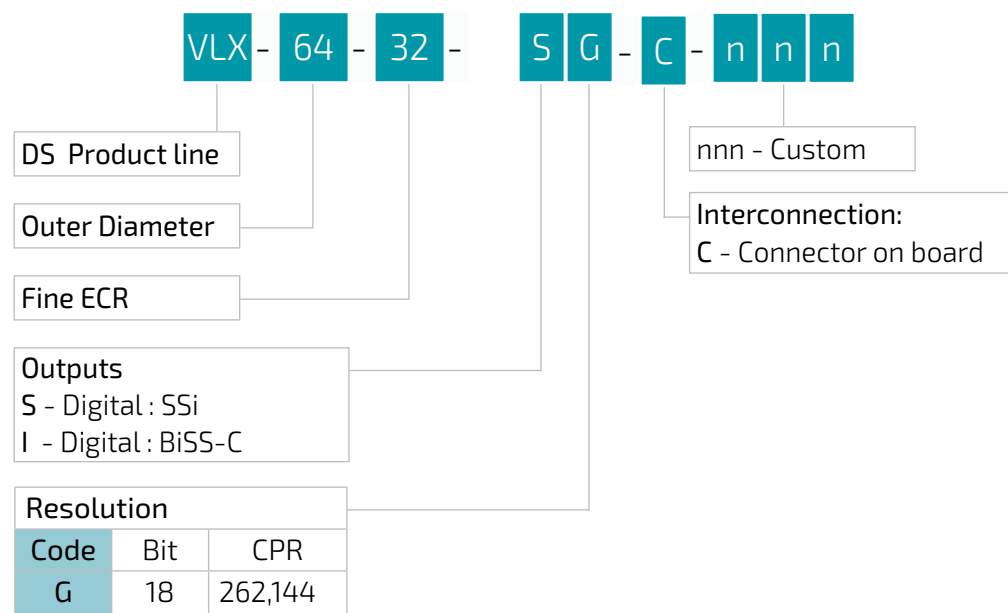
## Digital BiSS-C Interface

BiSS – C Interface is unidirectional serial synchronous protocol for digital data transmission where the Encoder acts as “slave” transmits data according to “Master” clock. The BiSS protocol is designed in B mode and C mode (continuous mode). The BiSS-C interface as the SSI is based on RS-422 standards.



Bit #		Description	Default	Length
28	Ack	Period during which the encoder calculates the absolute position , one clock cycle	0	1/clock
27	Start	Encoder signal for “start” data transmit	1	1 bit
26	“0”	“start” bit follower	0	1 bit
8...26	AP	Absolute Position encoder data		
7	Error	Error (BIT Optional)	1	1 bit
6	Warn.	Warning (non active)	1	1 bit
0...5	CRC	The CRC polynomial for position, error and warning data is: $x^6 + x^1 + x^0$ . It is transmitted MSB first and inverted. The start bit and “0” bit are omitted from the CRC calculation.		6 bits
	Timeout	Elapse between the sequential “start” request cycle's.		25 μs

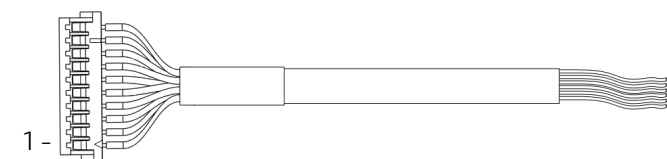
## Ordering Code



## Optional Accessories

### Interconnection - connector HRS DF13-10S-1.25

#	SSi / BiSS	Remarks
8	5V	P.S.
7	GND	GND /RTN
6	Data+	Data / NCP TX
5	Data-	
4	Clock-	Clock / NCP RX
3	Clock+	



### Accessories - cables, optional

SSi / BiSS	Remarks
CB-00088-250	AWG30, 250 mm
CB-00088-500	AWG30, 500 mm

Netzer Cat No.: CB 00014

Cable: 30 AWG twisted pair (3):

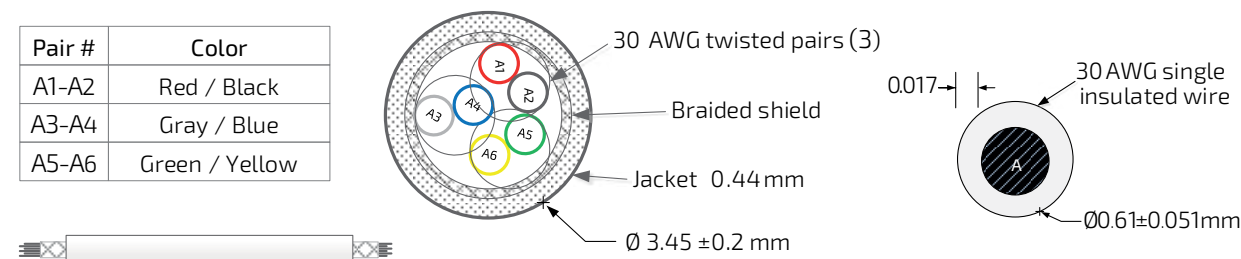
2 (30 AWG 25/44 tinned copper, Insulation: PFE Ø 0.15 to Ø 0.6 ± 0.05 OD)

Temperature rating: -60 to +150 Deg C

Braided shield: Thinned copper braided 95% min. coverage

Jacket: 0.44 silicon rubber (NFA 11-A1) Ø3.45 ±0.2 OD

Pair #	Color
A1-A2	Red / Black
A3-A4	Gray / Blue
A5-A6	Green / Yellow



## Sold & Serviced By:

Canadian and International Sales  
**ELECTROMATE**  
877-737-8698  
sales@electromate.com  
www.electromate.com

U.S. Sales  
**SERVO2GO.com**  
877-378-0240  
sales@servo2go.com  
www.servo2go.com

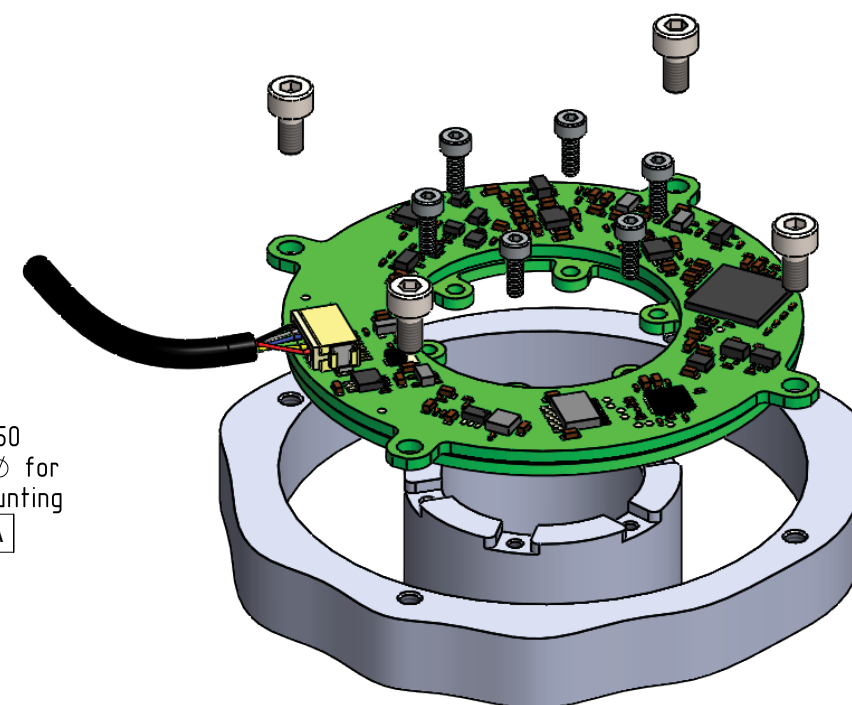
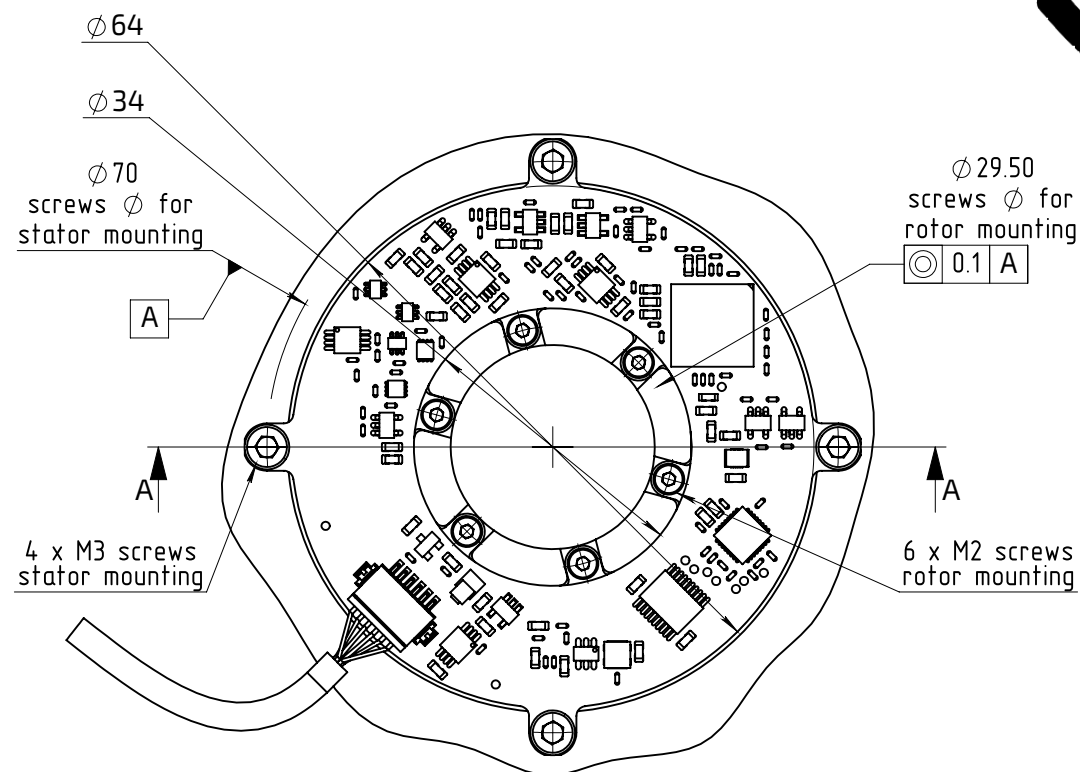
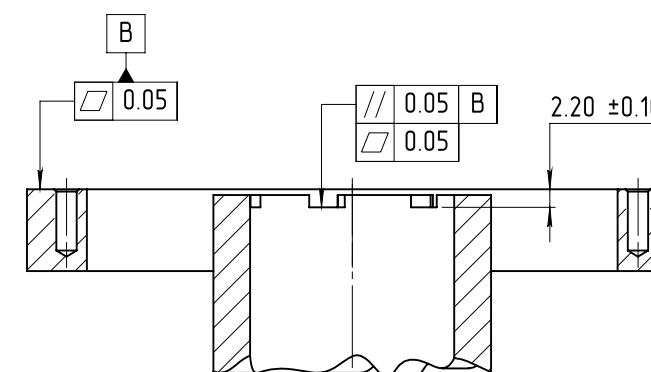
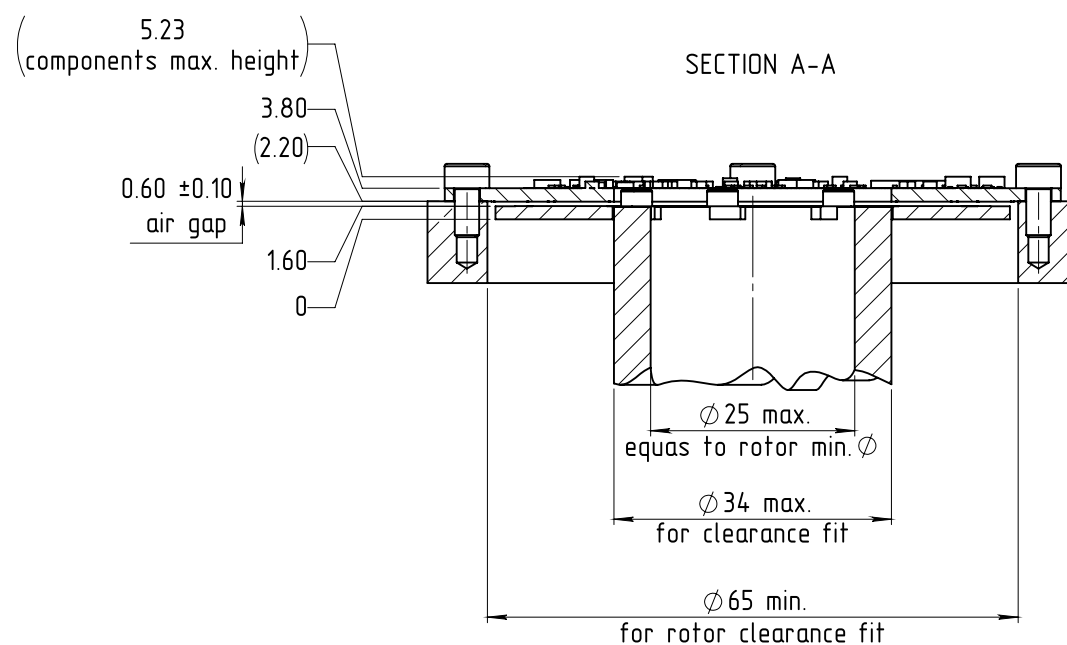
### Related documents

LX-60 User Manual : Mechanical , Electrical and calibration setup.

### Demonstration Kit

DKIT-VLX-60-SG with SSi interface

DKIT-VLX-60-IG with BiSS interface Includes, mounted encoder on rotary jig, and RS-422 to USB converter.



Unless otherwise specified  
Dimensions are in: mm  
Surface finish: N6  
Linear tolerances: ±0.1 deg