POSITAL

ABSOLUTE IXARC ROTARY ENCODER AND LINEAR SENSOR WITH SSI INTERFACE INSTRUCTIONS





Applies to:

OCx-S
UCx-S
LU0-S
LD0-S

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1 Intended Use

Absolute rotary encoders are designed to provide unique position values from the moment they are switched on. This is accomplished by detecting the presence of a coded element, which corresponds to a unique position. Even movements that occur while the system is without power, are translated into accurate position values once the encoder is powered up again.

IXARC absolute encoders always ensure reliable positioning; they never require a reference run which increases the safety and efficiency of the machines. Their compact size makes them ideal for applications ranging from healthcare equipment to factory automation.

2 Safety

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following signs may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a Danger or Warning safety label indicates that an electrical hazard exists, which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards.
Obey all safety messages that follow this symbol to avoid possible injury or death.

Please Note!

Electrical equipment should be serviced by qualified personnel only. No responsibility is assumed by POSITAL for any consequences arising out of the use of this material. This document is not intended as an instruction manual for untrained people.

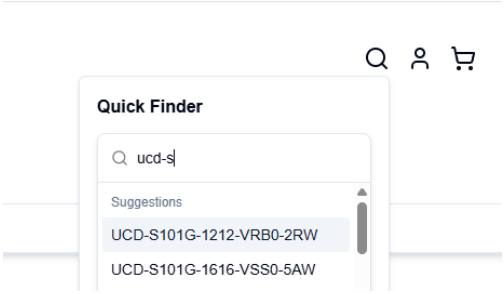
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3 Mechanical Mounting

Please see the sections Mechanical Data and Drawings on the encoder product page in our product finder on posital.com by searching for the exact typekey.

Figure 1 - Quick Finder on posital.com

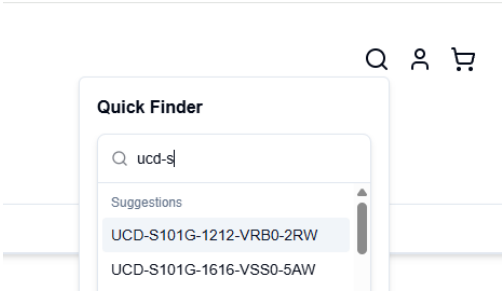


4 Electrical Mounting

4.1 Electrical Connection

Please see the sections Electrical Data and Connection Plan on the encoder product page in our product finder on posital.com by searching for the exact encoder typekey.

Figure 2 - Quick Finder on posital.com



5 Controls

5.1 Buttons and LED's

Figure 3 - Encoder with 2 Buttons

Green	- Lights Up when Encoder Is Powered Up



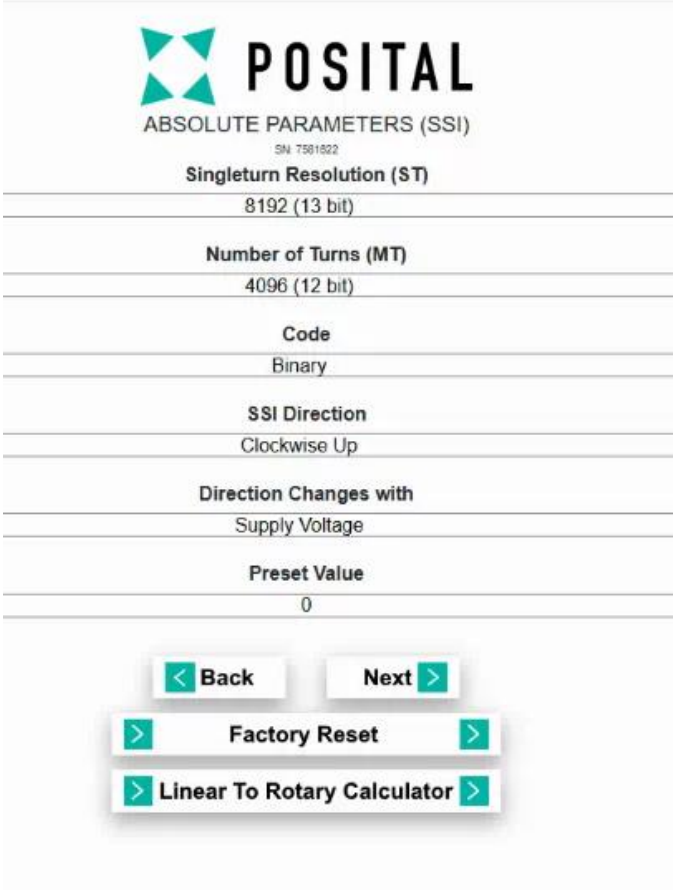
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5.2 UBIfast Configuration Tool

Programmable SSI encoders (typekey starts with UCD-SxxxP or LU0-SxxxP) can be configured with the Posital UBIfast Configuration Tool (fw 1.6.10) or Posital UBIfast Configuration Tool for NEXTgen (any fw version).

Please refer to the UBIfast instructions to be found in our Product Finder here or search for *10026904 - UBIFAST Configuration Tool* or *10072580 - UBIFAST Configuration Tool for NEXTGEN*.

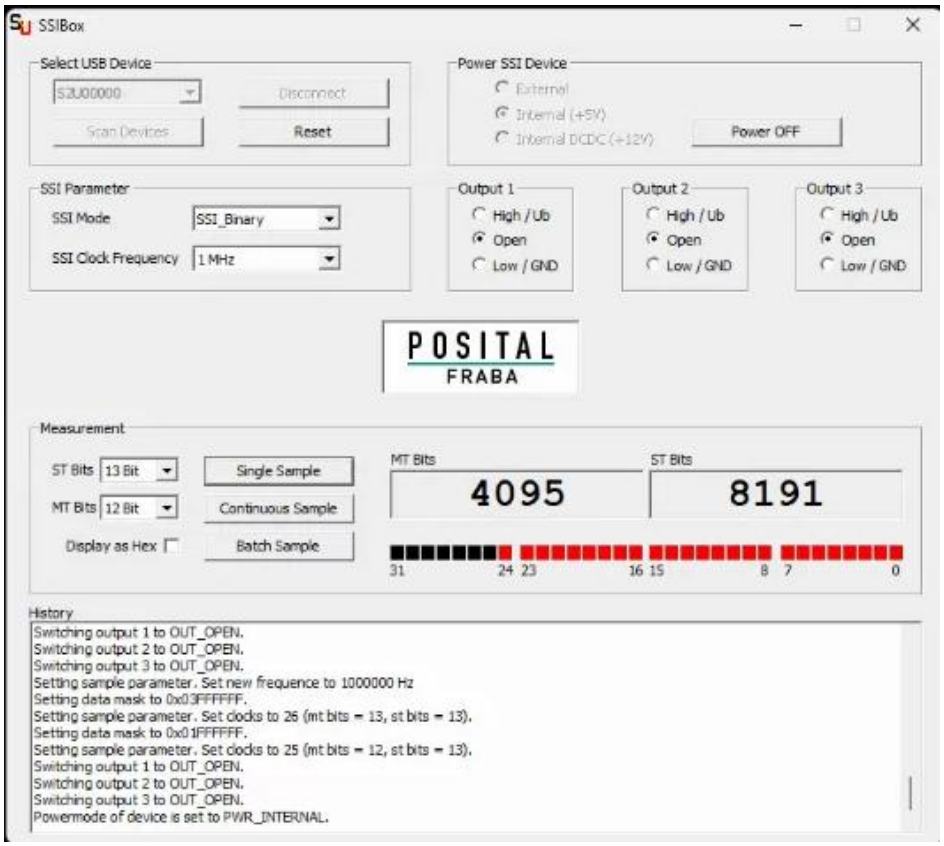
Figure 4 – UBIfast Configuration Tool NEXTgen GUI



5.3 SSI2USB Tool

Any SSI encoder can be used in combination with the SSI2USB tool to monitor encoder position values. The tool can be found in our ACCESSORIES Product Finder here or search for *10010186- SSI2USB Adapter DB15 (VA01)*.

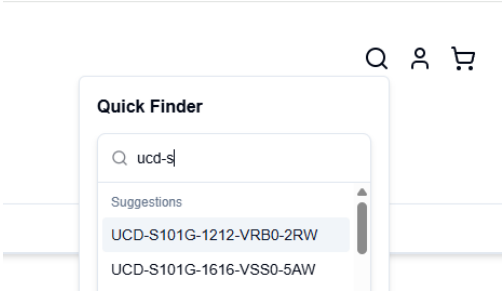
Figure 5 - SSIBox Application GUI



6 Commissioning

Please see the commissioning instructions available on product page in our product finder on posital.com by searching for the exact encoder typekey.

Figure 6 - Quick Finder on posital.com



7 Sensor Process Data

7.1 Process Data Mapping

Table 1 - SSI Bitstream for encoder with 13 bit singleturn, 12 bit multiturn

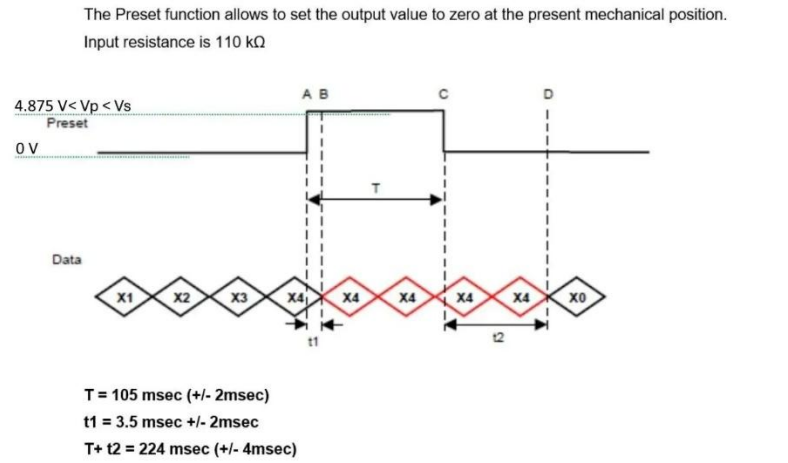
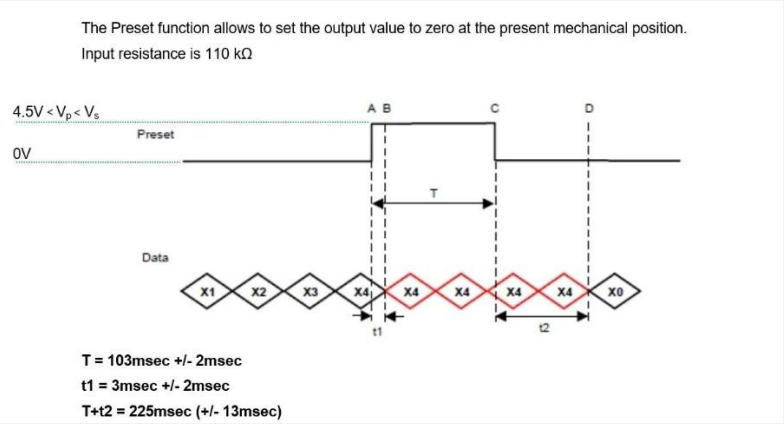
	Multiturn												Singleturn												Padding Bit
Bits Total	**26**	**25**	**24**	**23**	**22**	**21**	**20**	**19**	**18**	**17**	**16**	**15**	**14**	**13**	**12**	**11**	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
Exponentiation	2^11	2^10	2^9	2^8	2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0	2^12	2^11	2^10	2^9	2^8	2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0	
Decimal	2048	1024	512	256	128	64	32	16	8	4	2	1	4096	2048	1024	512	256	128	64	32	16	8	4	2	1	
Binary	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	0	0	1	1	1	1	0

Please note the ‘Padding Bit’ is resulting in 26 bit total for a 25 bit (13+12 bit) encoder.

8 Parameters

8.1 Parameter List

Table 2 - Standard Parameters

Parameter	Description
Preset	Apply a voltage to the PRESET connector pin or wire **UCD / LU0 Encoder**  **OCD Encoder** 
Direction	Apply encoder supply voltage to the DIR / Direction / Complement connector pin or wire

Multiple Transmissions	Also called ring shifting, for encoders with total resolution less than 32 bit (total resolution = singleturn + multiturn resolution, f. e. 12 bit + 13 bit = 25 bit)

9 Configuration

9.1 SSI Encoder Configuration Capabilities

The SSI interface is a unidirectional interface not allowing any sensor configuration via the SSI lines.

9.1.1 Non-programmable Encoders

Parameter values of non-programmable encoders (xCD-SxxxB, xCD-SxxxG, LD0-SxxxB, LU0-SxxxG) as described in chapter 8.1 Parameter List are hard coded into the sensor in the factory and can't be changed by the user.

9.1.2 Programmable Encoders

Posital is offering programmable SSI encoders (UCD-SxxxP or LU0-SxxxP) which can be programmed with our UBIfast Configuration tool, please see chapter 5.2 UBIfast Configuration Tool.

9.2 Applying Preset

See 8.1 Parameter List – Parameter Preset

9.3 Applying Counting Direction Change

See 8.1 Parameter List – Parameter Direction

10 Maintenance

The encoder does not require any additional maintenance.

11 Cleaning

The encoder should be kept clean and dry.

12 Troubleshooting

12.1 Visual Inspection

Is the encoder shaft moving freely?

Are there any visible dents or other damage?

Are the encoder connector pins all existing and straight?

Are all cable wire ends free from insulation and connected?

12.2 Electrical Supply

Are the supply voltage and current consumption within range as specified in the encoder datasheet?

12.3 LEDs

What is the status indication of the LEDs?

12.4 Data Transmission

Is data transmission to PLC or PC working?

12.5 Sensor Process Data Plausibility

Is the data transmitted consistently plausible?

13 Scrapping

The encoder must be disposed of according to national regulations, f. e. ElektroG for Germany which is derived from the EU WEEE directive.