

USER GUIDE

EVL Evaluation Encoder

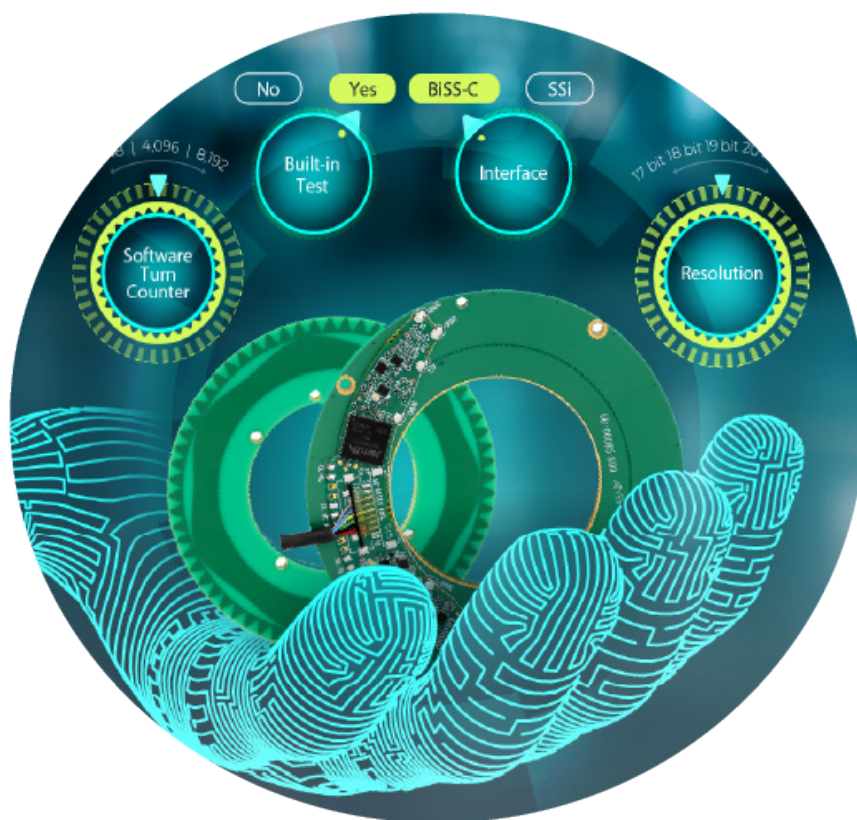


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1. Precision with Flexibility, Engineered for Early Design Implementation

Designing mechanical systems with integrated controls requires precise and adaptable feedback solutions, especially during prototyping. That's why we developed the EVL Evaluation Encoder: a configurable tool that puts you in control of key encoder parameters from day one.

Fully configurable from your workbench

- Resolution - Adjustable Bits per Revolution
- Interface - BiSS-C or SSI
- Software Multi-Turn Counter
- Built-in Test (BIT)

The EVL comes in the standard VL form factor (Ø13–247 mm) and are supplied with a 750 mm cable terminating in a female D-type connector, ready for immediate evaluation.

Encoder Explorer software provides full parameter control, plus

- Limits View - to avoid out-of-spec operation
- Mapping View - to understand protocol behaviour and system impact

When ordering EKITs, you receive two additional cables and a rotating jig

- One with an adapter (Blue box) for connecting to a computer (male D-type to USB)
- One with flying leads for connecting to your system (male D-type to flying leads)

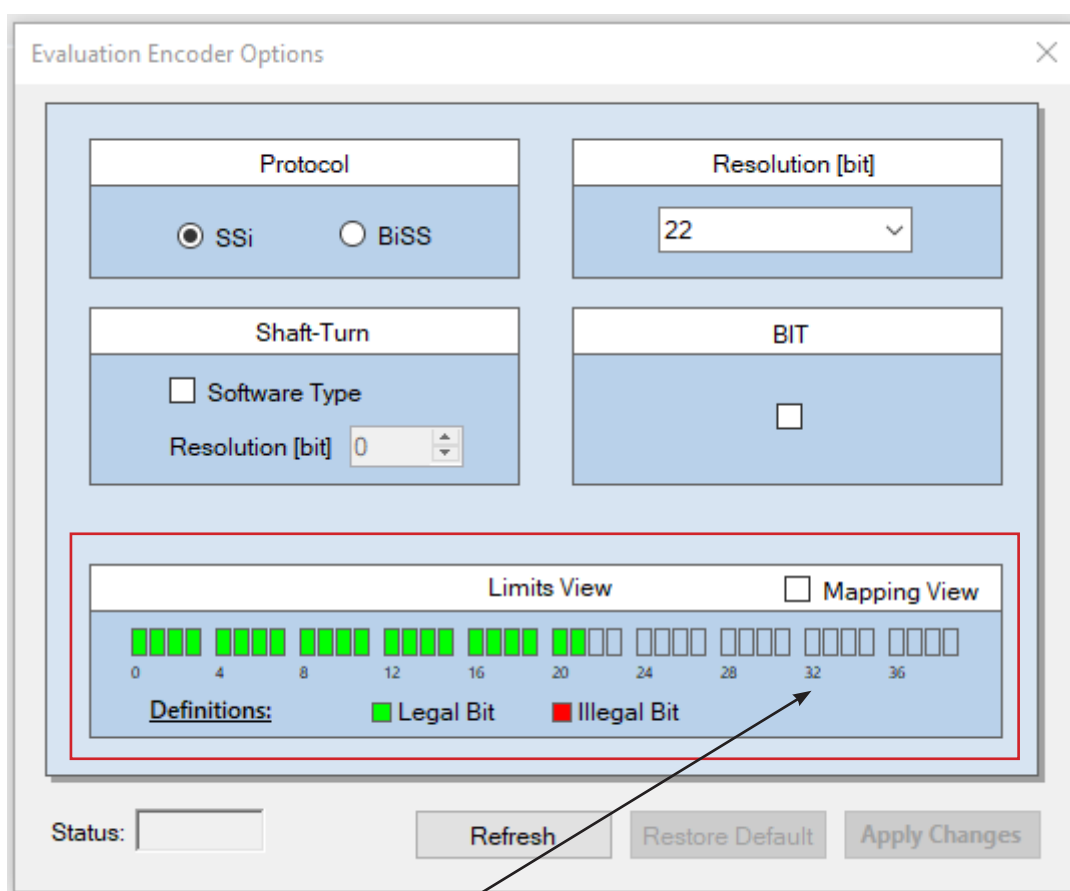
By experimenting with different parameter combinations during evaluation, you'll discover the optimal configuration for your system, resulting in a precise encoder part number you can confidently carry forward to production.

2. How do you configure an EVL encoder?

The EVL encoder can configure 4 parameters:

Parameters	Range	Required
Protocol	SSI/ BiSS	Must
Resolution	16-23	Must
Shaft turn	A-B	Optional
BIT (built in Test)	Enable/Disable	Optional

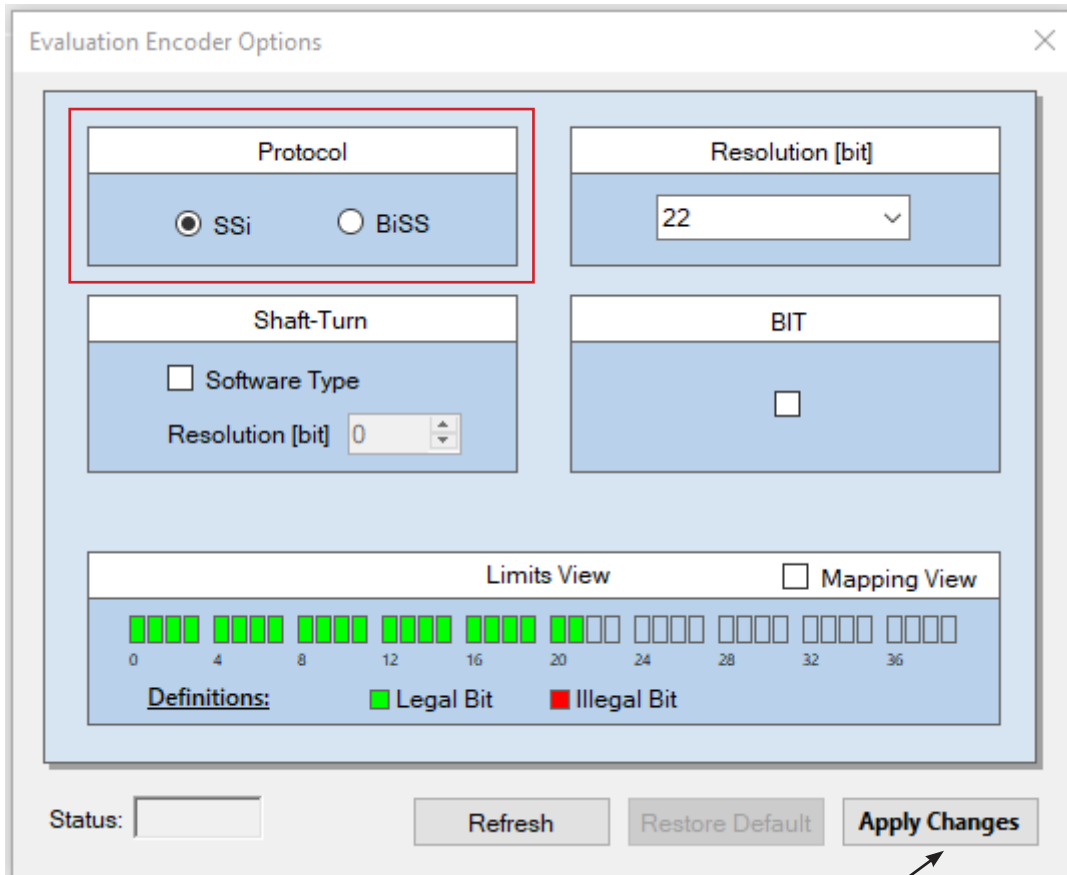
*For your attention, changing the parameters does not require a new calibration, and the initial calibration remains valid.



Note: The maximum bits for the encoder is 32. Therefore, we made a visual Light bar that helps to understand how many you can add.

3. Communication Protocol – BiSS or SSI

- SSI Protocol: 23 bits available
- BiSS Protocol: 20 bits available, with BIT functionality provided separately



The dialog box titled "Evaluation Encoder Options" contains the following sections:

- Protocol:** A red box highlights the "SSi" and "BiSS" radio buttons. "SSi" is selected.
- Resolution [bit]:** A dropdown menu showing "22".
- Shaft-Turn:** Includes a "Software Type" checkbox and a "Resolution [bit]" dropdown set to "0".
- BIT:** Includes an unchecked checkbox.
- Limits View / Mapping View:** A section with a "Limits View" label and a "Mapping View" checkbox. Below is a bit map showing bits 0 to 36. Bits 0-19 are green (Legal Bit), and bits 20-36 are white (Illegal Bit).
- Definitions:** A legend showing a green square for "Legal Bit" and a red square for "Illegal Bit".
- Status:** A text field.
- Buttons:** "Refresh", "Restore Default", and "Apply Changes". An arrow points to the "Apply Changes" button.

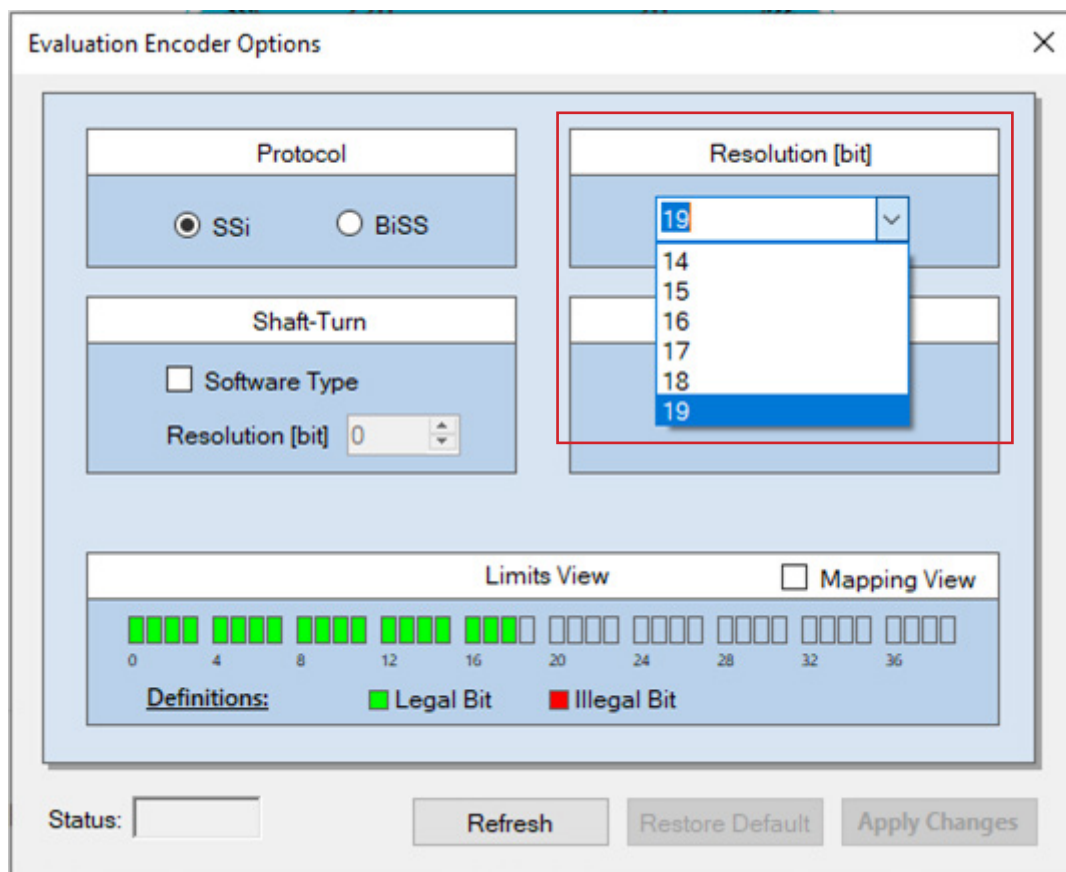
Make sure to click on "Apply Changes" so that the modification will be applied to the encoder.

4. Resolution (in bits)

For each encoder, the native bit count may vary, as there is an option to enable a distinct capability.

In noisy environments, using the native bit value is recommended for better performance.

Please refer to the native bit table below.



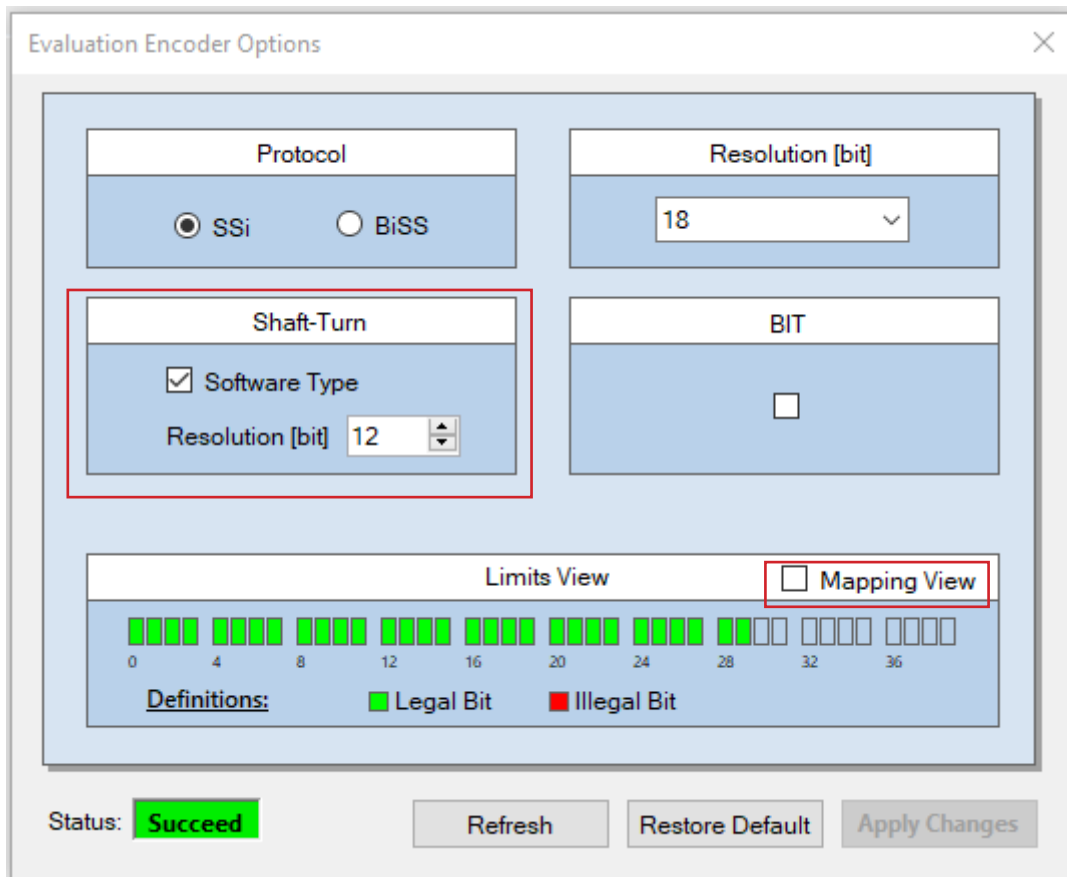
FAMILY	NATIVE
VLP-13	15
VLP-25	17
VLP-35	17
VLP-60	18
VLP-80	19
VLP-100	18
VLP-140	19
VLP-170	19
VLP-247	18

5. Software Shaft Turn Counter

This option is not mandatory and is intended only for applications that require shaft counting.

The **Software Type** box [✓] must be enabled before selecting the Resolution [bit].

The calculation of the number of rotations is determined by the number of bits you select. For example, if you choose 12 bits, the number of possible rotations will be 4096 (2^{12}).

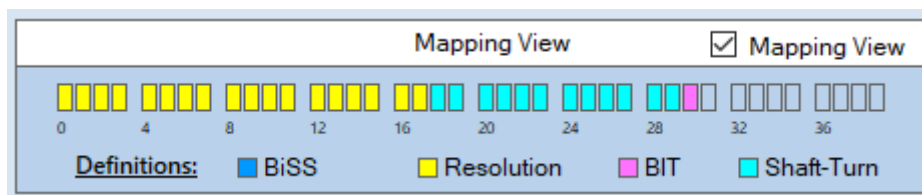


The dialog box titled "Evaluation Encoder Options" contains several configuration sections:

- Protocol:** Radio buttons for SSI (selected) and BiSS.
- Resolution [bit]:** A dropdown menu showing 18.
- Shaft-Turn:** A section with a checked "Software Type" checkbox and a "Resolution [bit]" dropdown set to 12. This section is highlighted with a red border.
- BIT:** A checkbox that is currently unchecked.
- Limits View:** A section with a "Mapping View" checkbox (highlighted with a red border) and a bit allocation bar. The bar shows 36 bits, with the first 28 bits marked as "Legal Bit" (green) and the last 8 bits as "Illegal Bit" (red).
- Status:** A green box labeled "Succeed".
- Buttons:** "Refresh", "Restore Default", and "Apply Changes".

The "Mapping View" can be accessed by clicking on the box.

In this view, you can see how the bits have been allocated according to the requirements you defined for the encoder.



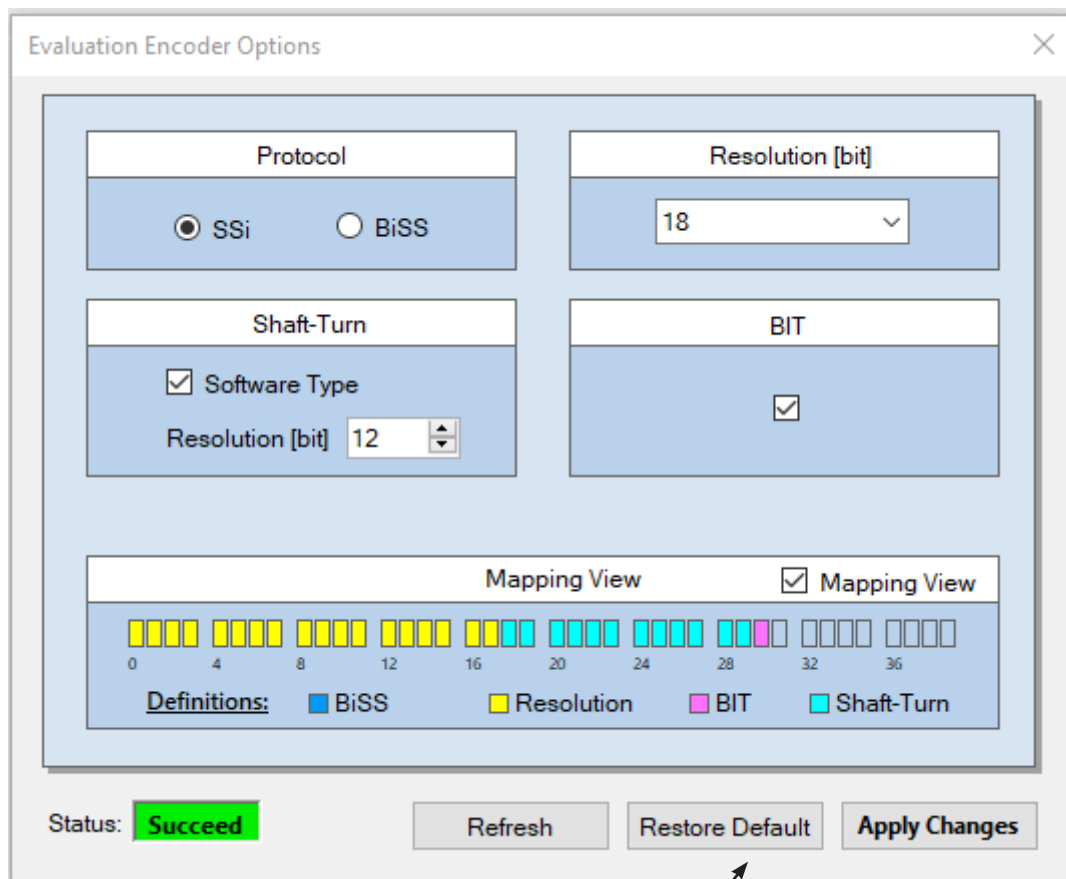
The "Mapping View" shows the bit allocation for 36 bits:

- Definitions:**
 - BiSS: Blue
 - Resolution: Yellow
 - BIT: Pink
 - Shaft-Turn: Cyan
- Allocation:**
 - Bits 0-15: Yellow (Resolution)
 - Bits 16-20: Cyan (Shaft-Turn)
 - Bits 21-25: Cyan (Shaft-Turn)
 - Bits 26-27: Pink (BIT)
 - Bits 28-31: Yellow (Resolution)
 - Bits 32-35: Yellow (Resolution)

6. Built-in Test (BIT)

This option is also not mandatory.

If you would like to perform a BIT (Built-In Test) on the encoder's operation, you should enable this option.



For your information, you can always click the "RESTORE DEFAULT" button to revert the encoder to the factory default settings as it was shipped from our plant.



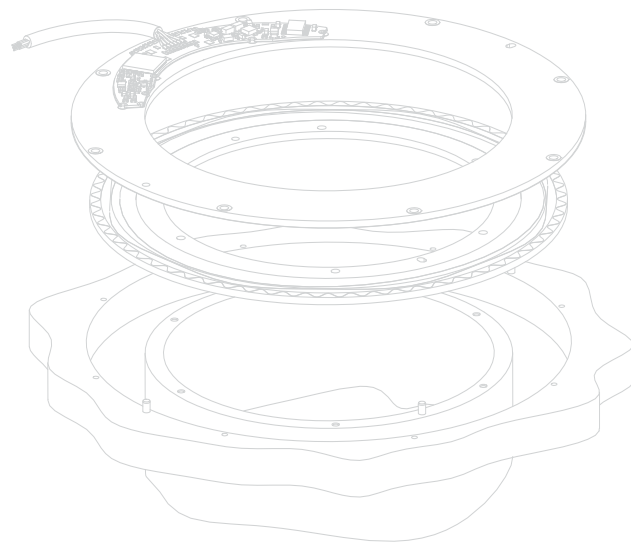
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