

USER GUIDE

EVL Evaluation Encoder

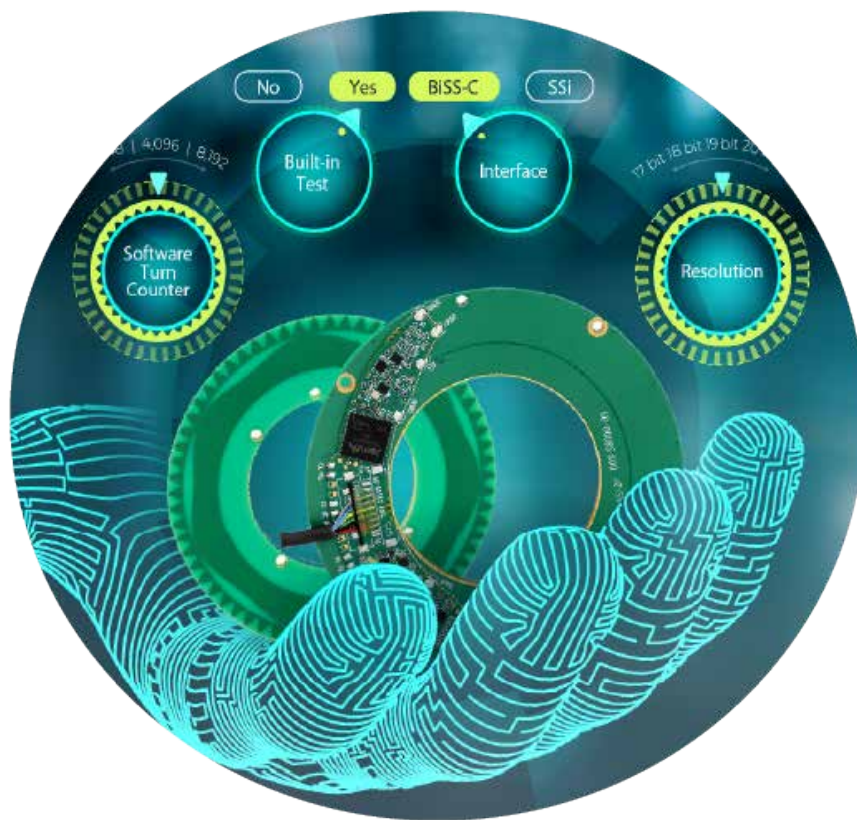


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1. Precision with Flexibility, Engineered for Early Design Implementation

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 is 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

EKIT Contents

When ordering EKITs, you receive encoder and 4 items — or 5 in the case of the VLX family:

1. Blue Box – USB to RS-422/485 converter.
2. Cable for connecting the Blue Box to the computer (USB A to B).
3. Dynamic jig – varies according to the product size.
4. Cable with a male D-type connector and flying leads for connecting to your controller/system
5. **VLX family only** – Cable with a connector to the encoder on one end and a D-type connector for the Blue Box on the other.

By experimenting with different parameter combinations during the evaluation process, you can determine the optimal configuration for your system - leading to a precise encoder part number that you can confidently move forward with for production.



Mechanical Drawings

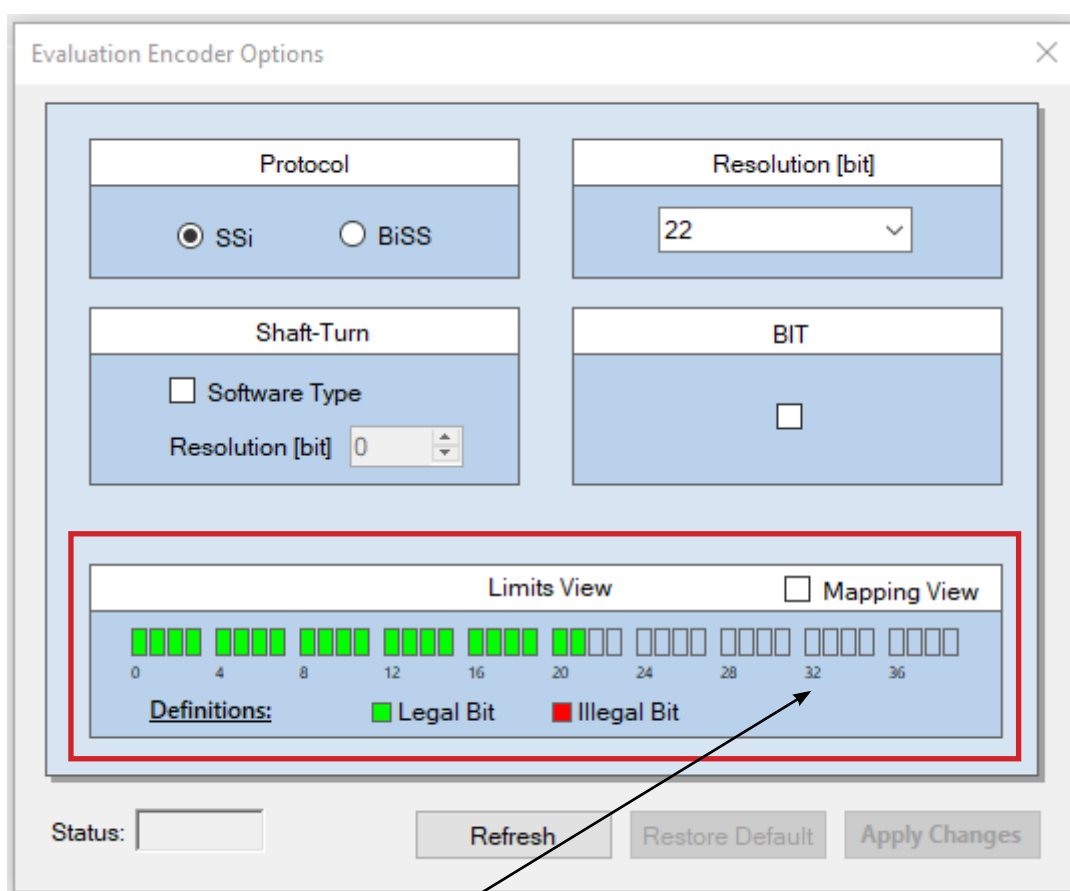
All EVL product drawings are identical to the ICD drawings shown on the website, according to their respective product families.

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

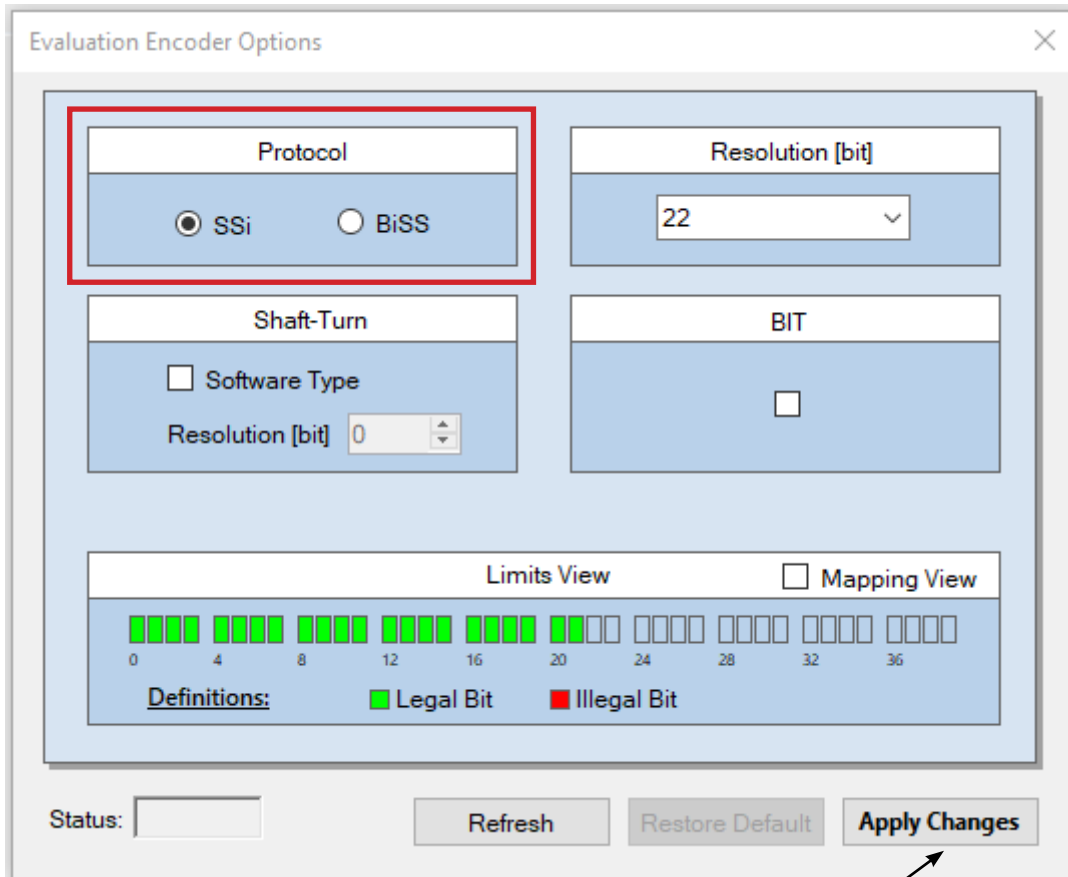
*For your attention, changing the parameters does not require a new calibration, and the initial calibration remains valid.



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 several configuration sections:

- Protocol:** A section with two radio buttons: ☒ SSI and ☐ BiSS. This section is highlighted with a red border.
- Resolution [bit]:** A dropdown menu currently showing "22".
- Shaft-Turn:** A section with a checkbox for "Software Type" and a "Resolution [bit]" dropdown set to "0".
- BIT:** A section with a single checkbox.
- Limits View / Mapping View:** A section with a toggle between "Limits View" (selected) and "Mapping View". Below the toggle is a bit map showing 36 bits (0 to 36). Bits 0-19 are green (Legal Bit), and bits 20-36 are white (Illegal Bit). A legend below the map defines green as "Legal Bit" and red as "Illegal Bit".

At the bottom of the dialog, there is a "Status:" field and three buttons: "Refresh", "Restore Default", and "Apply Changes". An arrow points to the "Apply Changes" button.

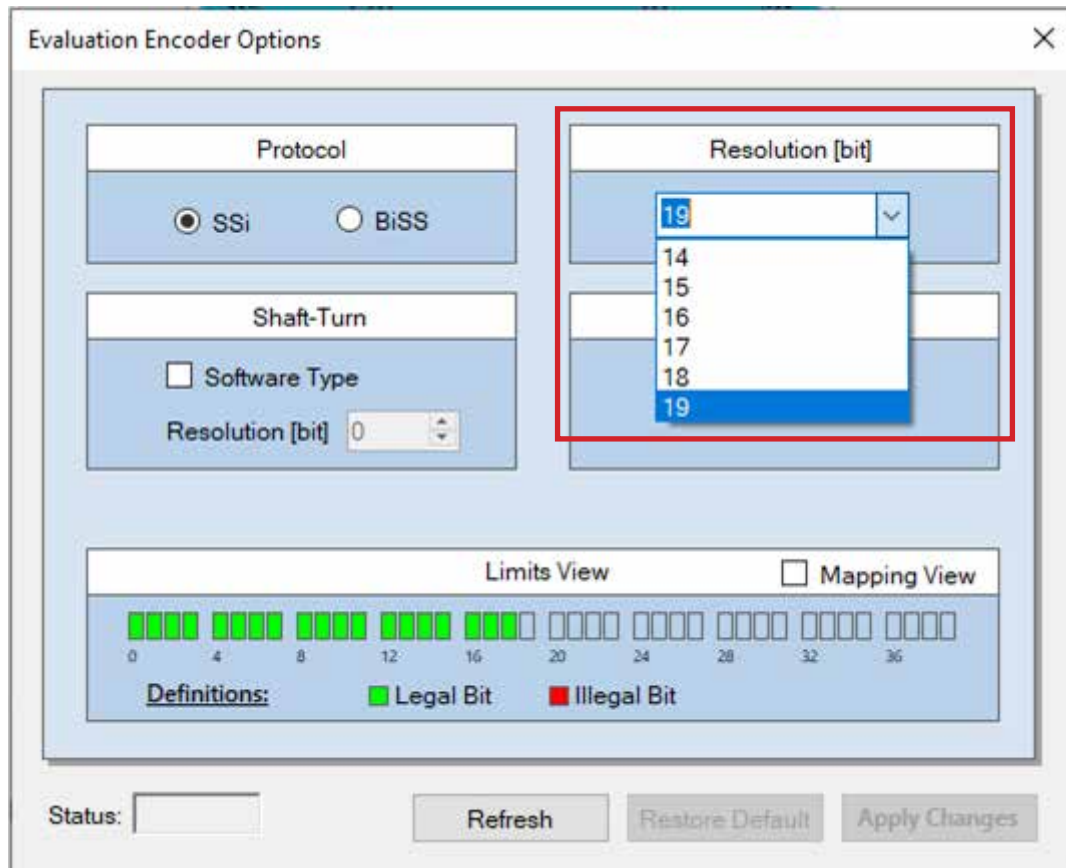
Make sure to click on "Apply Changes" so that the modification will be applied to the encoder.

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.



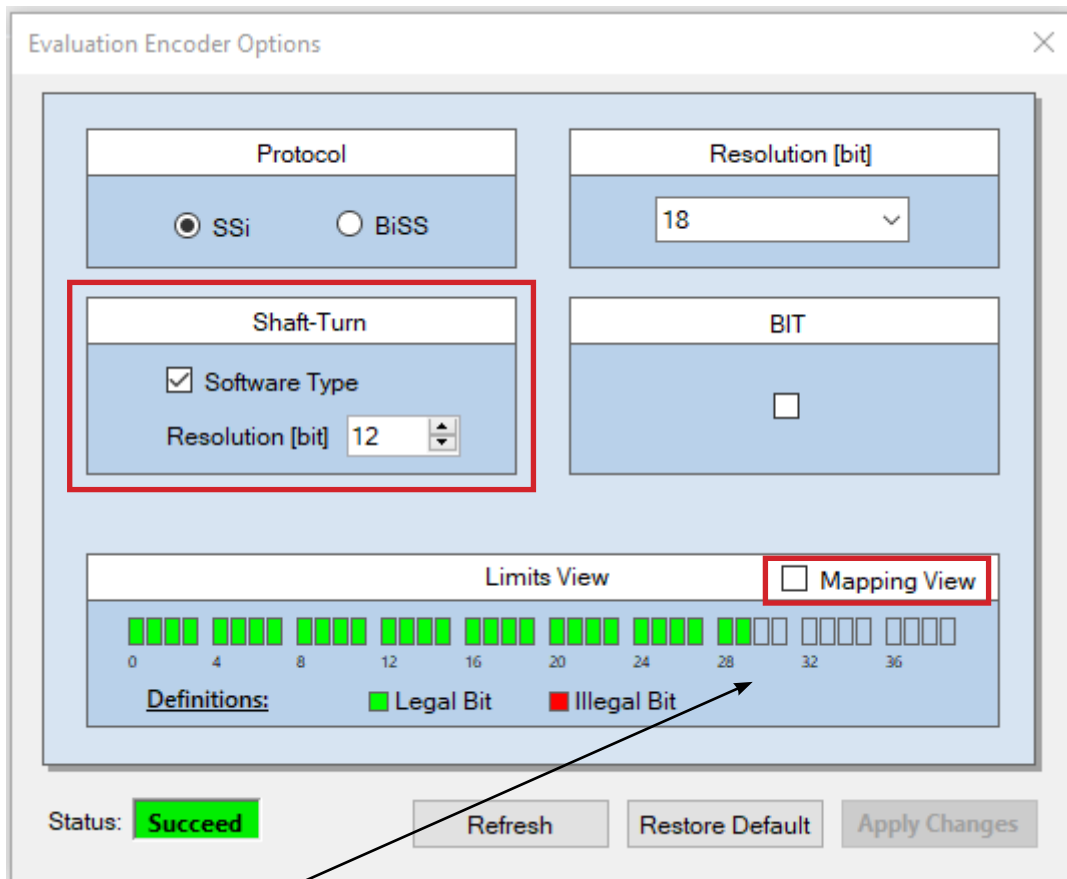
FAMILY	NATIVE
VLP-13	15
VLP-25	17
VLP-35	17
VLP-60	18
VLP-80	19
VLP-100	18
VLP-140	19
VLP-170	19
VLP-247	18

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}).

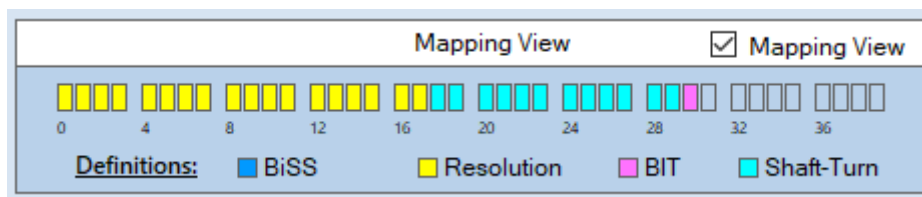


The dialog box titled "Evaluation Encoder Options" contains several configuration sections:

- Protocol:** Radio buttons for SSI (selected) and BiSS.
- Resolution [bit]:** A dropdown menu showing 18.
- Shaft-Turn:** A section highlighted with a red box containing a checked "Software Type" checkbox and a "Resolution [bit]" dropdown set to 12.
- BIT:** An unchecked checkbox.
- Limits View / Mapping View:** A section with two tabs. The "Mapping View" tab is selected and highlighted with a red box. Below the tabs is a bit map showing 36 bits (0 to 36). Bits 0-28 are green (Legal Bit), and bits 29-36 are white (Illegal Bit). A legend below indicates "Definitions: Legal Bit (green), 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 (0 to 36). The bit map is color-coded according to the legend:

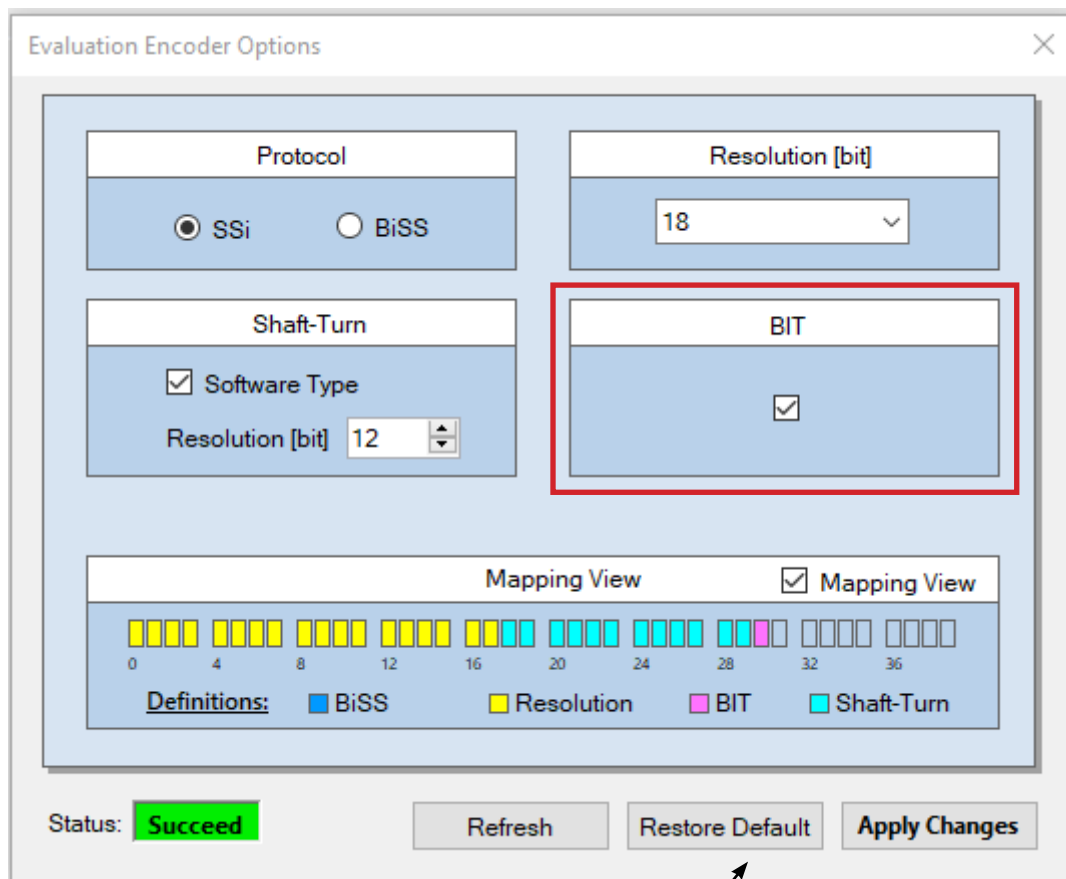
- BiSS:** Blue (bits 0-3)
- Resolution:** Yellow (bits 4-15)
- BIT:** Pink (bit 16)
- Shaft-Turn:** Cyan (bits 17-28)
- Illegal Bit:** White (bits 29-36)

The legend below the bit map indicates: **Definitions:** BiSS (blue), Resolution (yellow), BIT (pink), Shaft-Turn (cyan).

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.



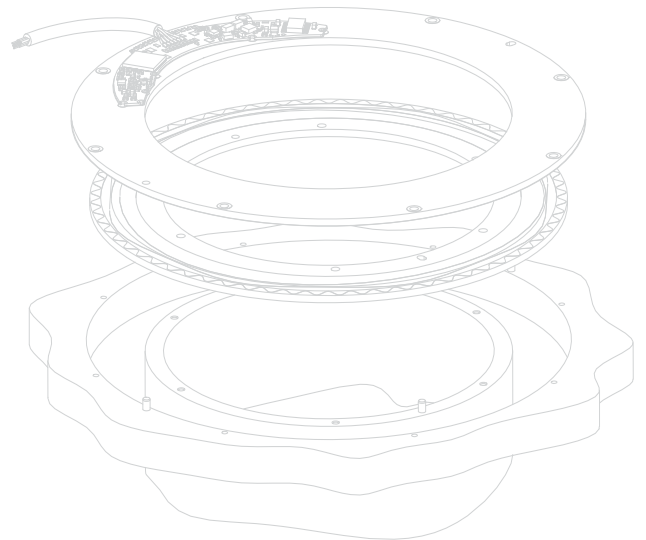
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EVL-UG-V02



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