ISI-Interface

Technical Information

Please keep for further use !

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Fonts

Italics and **bold** type are used for the title of a document or to emphasize text passages.

Passages written in `Courier` show text which is visible on the display as well as software menu selections.

"< >" refers to keys on your computer keyboard (e.g. <RETURN>).

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Revision History

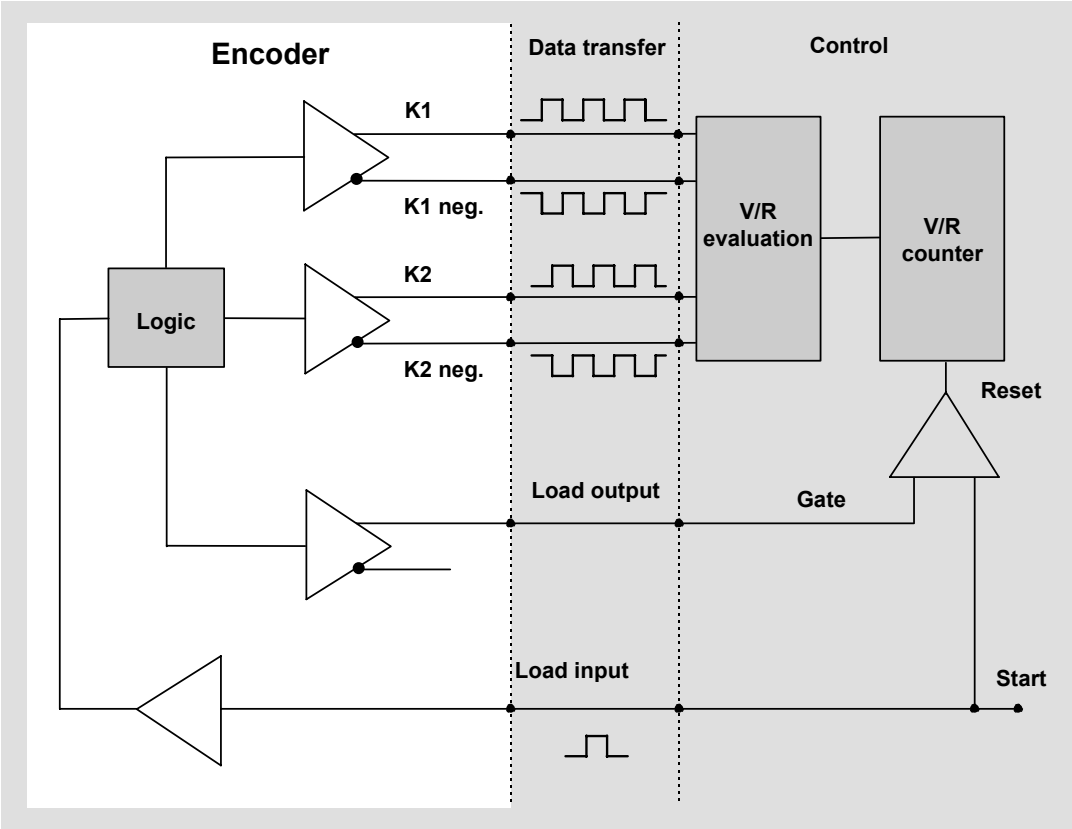
i ***Note:***
The cover of this document shows the current revision status and the corresponding date. Since each individual page has its own revision status and date in the footer, there may be different revision statuses within the document.

Document created: 22.09.1997

Revision	**Date**
Definition of the number of steps of the incremental-interface and the pulse number resulting from it.	30.10.2002

Absolute incremental - serial - interface (ISI-Interface)

Block diagram



Description

Incremental serial interface for absolute encoders. Changes in position are transferred by two common incremental tracks. The sign of the 90° phase displacement indicates the direction of travel. However, it is not necessary to approach reference points.

Instead, the encoder's loading input is connected to the loading level. The encoder then no longer issues pulses, but switches on its loading output. The incremental counter can now be set to zero and the loading level disconnected from the loading input. The encoder then issues counter pulses until the incremental counter is counted up to the encoder position. When this position is reached, it disconnects its loading output again and is then ready for further loading operations.

Since during the loading operation the incremental counter does not contain a valid position, the axis should not be positioned during that period. To suppress glitches stored in the incremental counter, you should repeat the loading operation at regular intervals, for example when the respective axis is idle.

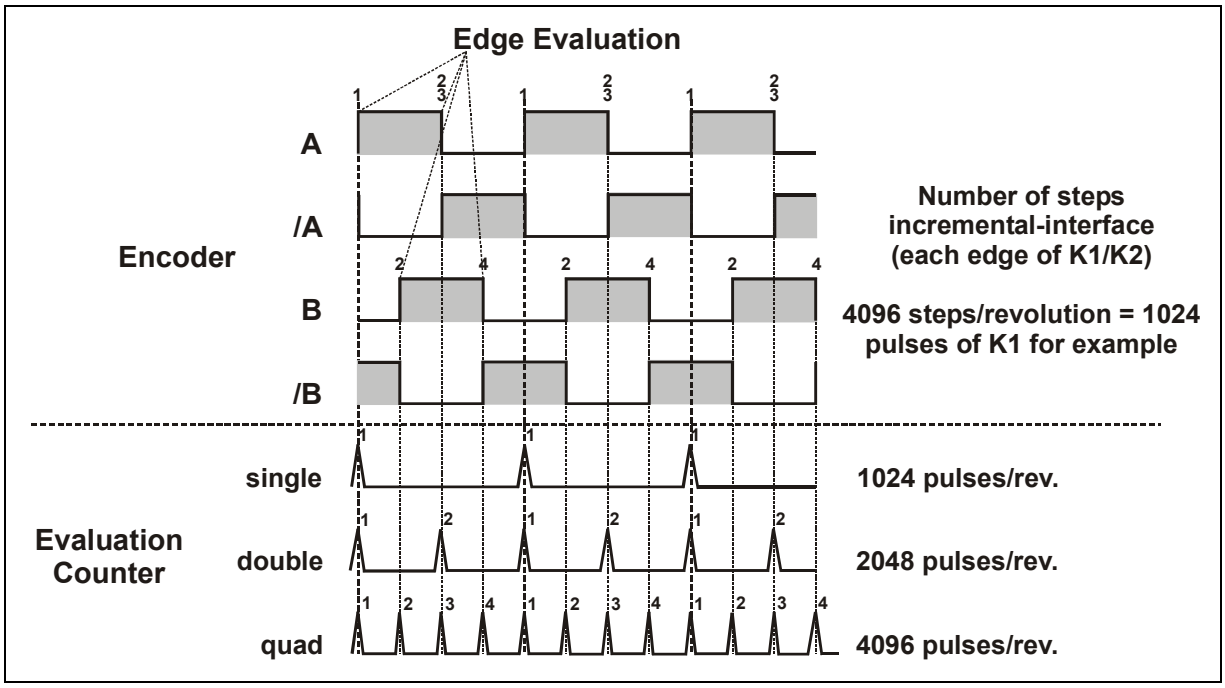
If the connected incremental counter frequently contains faulty values, you should reduce the maximum frequency which is programmed in the encoder. Apart from this, the system must have good interference suppression characteristics. The incremental signals should be transferred differentially with TTL levels via twisted-pair wires. All the cables, particularly the power cables on frequency converters, must be fitted with screens grounded on both ends (consider installation hints in the associated manual !).

Definition of the number of steps of the incremental-interface and the pulse number resulting from it

Since the ISI-interface is an absolute-measurement-method, the output signal sequence (K1, K2) is not indicated in **pulses per revolution** as in the case of a pure incremental-encoder, but in **steps per revolution**. With the programming of the incremental-interface, therefore the **number of steps per revolution** is programmed!

That means:
The **programmed number of steps of the incremental-interface** corresponds to the **puls number after a quad-evaluation!**

Example:



Counter evaluations related to the above example

Single

Pulses/rev. = 0,25 x number of steps (incremental-interface) = 0,25 x 4096 = **1024**

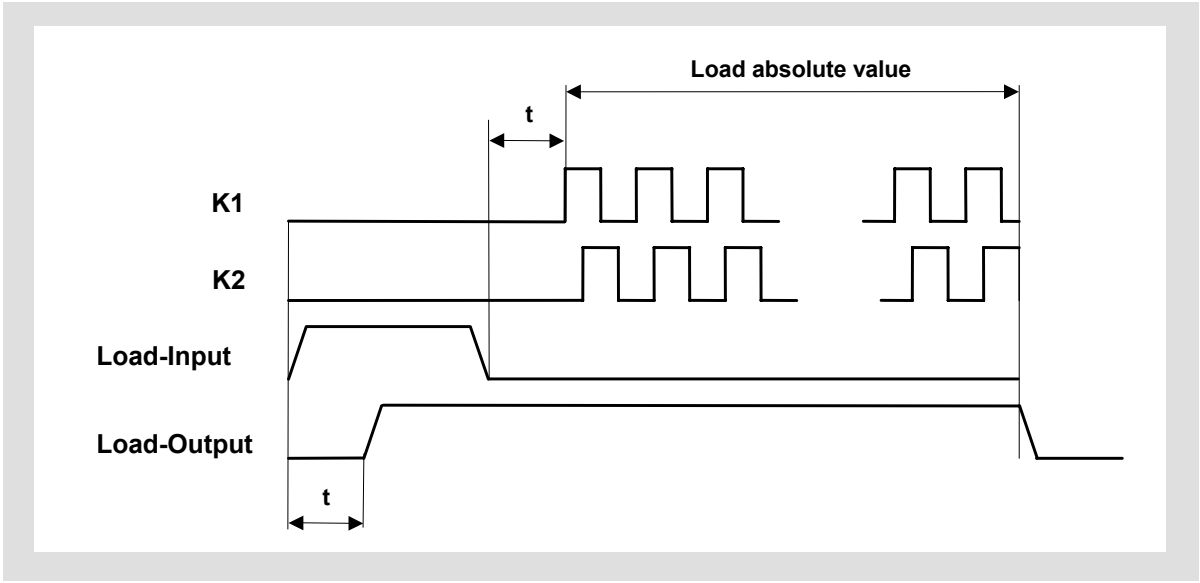
Double

Pulses/rev. = 0,5 x number of steps (incremental-interface) = 0,5 x 4096 = **2048**

Quad

The pulses per revolution corresponds to the number of steps (incremental-interface) of the encoder = **4096**

Impulse diagram: loading process for falling loading edge



t = response time (programmable)