# Netzer Encoder BIT errors

BIT: Built In Test

Netzer encoder has an internal mechanism to inform the customer about errors. The SSI/BISS word embeds a dedicated bit to inform of this.

When working in SSI protocol, the first (most-significant) bit is the indication for error and is equal to '1' when error exists.

When working in BISS protocol, the first bit after the absolute-position bit is the indication for error and is equal to '0' when error exists.

This table describes the error indicated in Encoder Explorer for each FW version:

| Name | Description | FW < 4 | FW > 4 |
|------|-------------|--------|--------|
| FHRL | Fine amplitudes are above the allowed limit. (during startup) | X | X |
| CHRL | Coarse amplitudes are above the allowed limit. (during startup) | X | X |
| MHRL | Medium amplitudes are above the allowed limit. (during startup) | X | X |
| FLRL | Fine amplitudes are below the allowed limit. (during startup) | X | X |
| CLRL | Coarse amplitudes are below the allowed limit. (during startup) | X | X |
| MLRL | Medium amplitudes are below the allowed limit. (during startup) | X | X |
| SHAFT-MOVEMENT | Encoder is power up during movement while the speed is above the allowed limit | X | X |
| RUNTIME_HRL | Current channel (F/M/C) is above the allowed limit | X | X |
| RUNTIME_LRL | Current channel (F/M/C) is below the allowed limit | X | X |
| VDD_ERROR | VDD (power supply) is above (or below) the allowed limit | X | |
| NM_ERROR | Error in startup absolute position | X | |
| WAKEUP_OUT_OF_SECTION | Encoder first position (after power up) is out of allowed section (user defined) | X | |
| CFEL_ERROR | Coarse-to-fine error is above the allowed limit | X | |
| MEMORY_INCOSISTENCY | Error in internal encoder non-volatile memory | X | |
| SWITCHING_ERROR | Error when switching channel from fine-to-coarse or coarse-to-fine | X | |

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