



Absolute encoders AFS/AFM60 SSI

AFM60E-TBAN004096

Model Name > **AFM60E-TBAN004096**
Part No. > **1063082**



At a glance

- High-resolution absolute encoders with up to 30 bits (AFM60) or up to 18 bits (AFS60)
- Face mount flange, servo flange, blind or through hollow shaft
- SSI, SSI + Incremental or SSI + Sin/Cos interface
- Programmable resolution and offset (dependent on type)
- Connection system: M12, M23 connector or cable outlet
- Enclosure rating: IP 67 (housing), IP 65 (shaft)
- Operating temperature: -30 °C to +100 °C (depends on type)

Your benefits

- Programmability of the encoders means less storage, greater machine availability and easy installation
- Precise positioning due to high resolutions
- Large selection of mechanical interfaces and electrical contacting possibilities: Suitable for all applications
- Suitable for applications with limited space requirements (extremely short installation depth of 30 mm)
- Very good rotation accuracy due to increased bearing distance
- One programming tool and software with automatic encoder detection for AFS60/AFM60/DFS60



Electrical data

MTTFd: mean time to dangerous failure:	250 a (EN ISO 13849-1) ¹⁾
Reverse polarity protection:	0

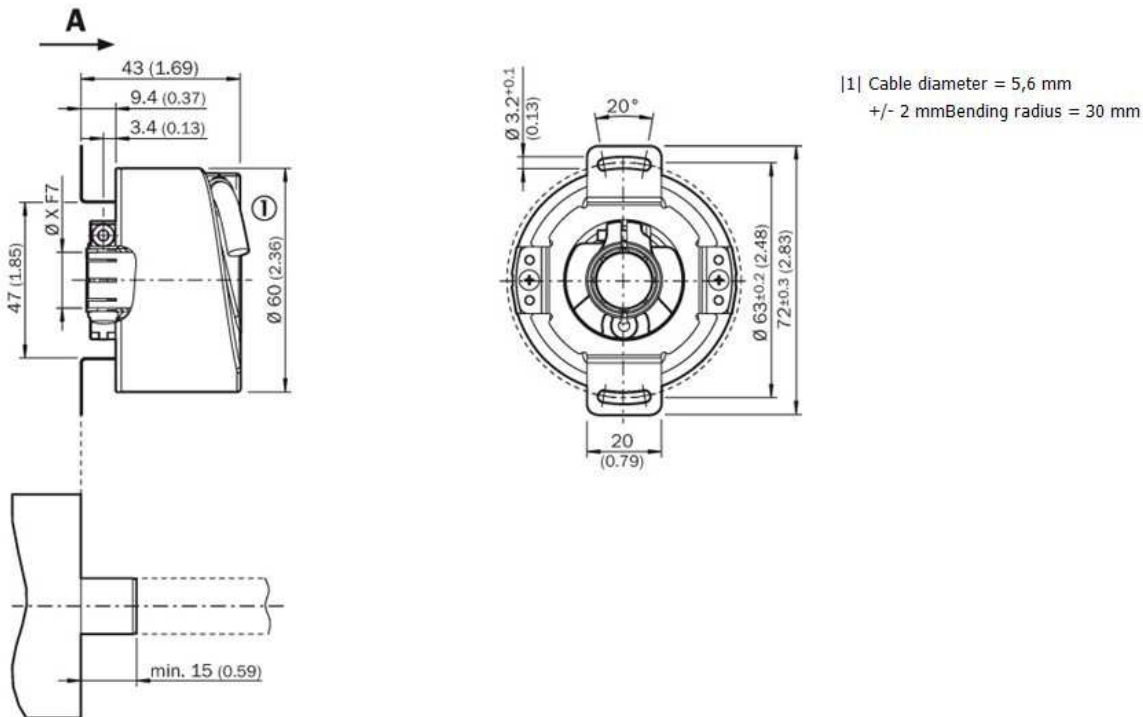
¹⁾ This product is a standard product and does not constitute a safety component as defined in the Machinery Directive.

Calculation based on nominal load of components, average ambient

temperature 40°C, frequency of use 8760 h/a. All

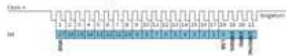
electronic failures are considered hazardous. For more information, see document no. 8015532.

Dimensional drawing



Signalausgänge

SSI data format singletum



Bit 1-18: Position Bits

- LSB: Least significant Bit
- MSB: Most significant Bit

Bit 19-21: Error Bits

- ERRDIG: Failure message about speed. If this failure occurs during the position building procedure it will be indicated by the ERRDIG-Bit.
- ERRSRC: Light source monitoring failure.
- ERRSYNC: Contamination of the disc or scanning system. During the determination of the position, an error has occurred since the last SSI transmission. The error bit will be deleted during the next data transmission.

The evaluation of the error bits has to be realized in the PLC.

The provided error bits don't have to be used by the PLC compulsorily.

Example

If the resolution of the absolute encoder is set on 13 bits, 16 bits are provided by the encoder: 13 data bits and 3 error bits. If the PLC is not able to evaluate the error bits, the PLC has to be set on a resolution of 13 bits. Then the error bits have to be masked out by the PLC.

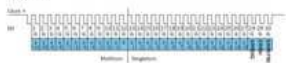
SSI data format multitum

30 Bits



- Bit 1-12: Position Bits multitum
- Bit 13-30: Position Bits singletum
- Bit 31-33: Error Bits

27 Bits



- Bit 1-12: Position Bits multitum
- Bit 13-27: Position Bits singletum
- Bit 28-30: Error Bits

Error Bits

- ERRDIG: Failure message about speed. If this failure occurs during the position building procedure it will be indicated by the ERRDIG-Bit.
- ERRSRC: Light source monitoring failure.
- ERRSYNC: Contamination of the disc or scanning system. During the determination of the position, an error has occurred since the last SSI transmission. The error bit will be deleted during the next data transmission.

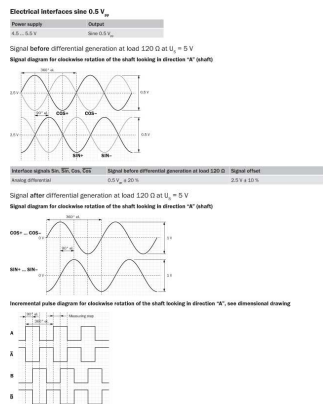
The evaluation of the error bits has to be realized in the PLC.

The provided error bits don't have to be used by the PLC compulsorily. The multitum resolution is fixed on 12 bits.

Example

If the resolution of the absolute encoder is set on 27 bits, 30 bits are provided by the encoder: 27 data bits and 3 error bits. If the PLC is not able to evaluate the error bits, the PLC has to be set on a resolution of 27 bits. Then the error bits have to be masked out by the PLC.

Interfaces



16-bit data format examples

Bit 15-0: Positive Bits

- LSI: Last word segment bit
- MSB: Most significant bit

Bit 15-0: Error Bits

- EPP01: Error message output at speed if this fold are occurring during the position building procedure it will be indicated by the EPP01s.
- EXPR01: Error message monitoring block.
- EXPR02: Containing the position of an occurring error. During the determination of the position, an error has occurred since the last word transmission. The error will be located during the next word transmission.

The evaluation of the error bits has to be realized in the PLC.

The provided error data has to be used by the PLC completely.

Example

If the transmission of the absolute encoder at set 3.38, 16 bits are provided by the encoder: 13 data bits and 3 error bits.

Bit 15-0: Position bits multithread

Bit 15-0: Position bits (segment)

Bit 15-33: Error bits

24-bit data format multithread

Bit 23-0: Positive Bits

- LSI: Last word segment bit
- MSB: Most significant bit

Bit 23-0: Error Bits

- EPP01: Error message output at speed if this fold are occurring during the position building procedure it will be indicated by the EPP01s.
- EXPR01: Error message monitoring block.
- EXPR02: Containing the position of an occurring error. During the determination of the position, an error has occurred since the last word transmission. The error will be located during the next word transmission.

The evaluation of the error bits has to be realized in the PLC.

The provided error data has to be used by the PLC completely. The multithread resolution is fixed in 22 bits.

Example

If the transmission of the absolute encoder at set 27.78, 24 bits are provided by the encoder: 27 data bits and 2 error bits.

Bit 23-0: Position bits multithread

Bit 23-27: Position bits (segment)

Bit 28-30: Error bits

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