Manufacturer / Hersteller

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Annex of the Report
on the
Certificate
M6A 020196 0312 Rev. 01

Safety related Encoder Series R56 inductive
Geberfamilie R56 inductiv

Report No.: HT92173C-A
Revision 1.5 dated 27.01.2025

1. Safety functions, encoder with serial EnDat 2.2 interface / Sicherheitsfunktionen, Geber mit serieller EnDat 2.2 Schnittstelle:

No. Lfd. Nr.	Safety function Sicherheitsfunktion
101	Provision of an absolute position value Pos1 by the encoder. The safety relevant resolution of Pos1 depends on the encoder type.
102	Provision of position value Pos2 by the encoder for the verification of Pos1.
103	For every position value the safe encoder shall provide current error bits F1, F2 at the CU-Interface.
104	As soon as the Safe CU requests Pos1, Pos2 or error bits via the CU interface, the safe encoder shall transmit these data safely to the Safe CU via the CU interface.

2. Safety functions, encoder with serial EnDat 3 interface / Sicherheitsfunktionen, Geber mit serieller EnDat 3 Schnittstelle:

No. Lfd. Nr.	Safety function Sicherheitsfunktion
SF1[1]	Safe provision and transfer of one or more items of safety information (e.g., position, speed, acceleration, temperature from the encoder to the safe CU
SF2	Safe provision and transfer of the error bits and ignore bits for every item of safety information from the encoder to the safe CU
SF3	Provision of a safe electronic ID label in the encoder, and transfer to the safe CU
SF4	Provision of safe settings, and transfer to the safe CU. Note: the control can read and write the safe settings in the encoder
SF5	Provision and transfer of one item of additional, redundant information for each item of safety information for the safe comparison in the safe CU

3. Safety functions, encoder with serial DRIVE-CLiQ interface / Sicherheitsfunktionen, Geber mit serieller DRIVE-CLiQ Schnittstelle:

No. Lfd. Nr.	Safety function Sicherheitsfunktion
101	Provision of an absolute position value Pos1 by the encoder in the formats XIST1 and XIST2.
102	Independent generation of the absolute position value Pos2 for the verification of Pos1.
103	Provision of a sign of life (SOL) for Pos2.
104	Provision of a sign of life LS1 / LS2.
105	Redundant calculation of a CRC16 over Pos2
106	Indication of the error state through error bits (F1 and F2), which are set in the encoder if Pos1 or Pos2 is erroneous or another safety-relevant error has occurred.
107	Provision of a unique serial number for the identification of the encoder.
108	Provision of a data triple XIST1“ consisting of Pos1, Pos2 and a dedicated Offset for the position comparison.

[1] SF1 provides position information for this encoder series; see also the product information of each product.

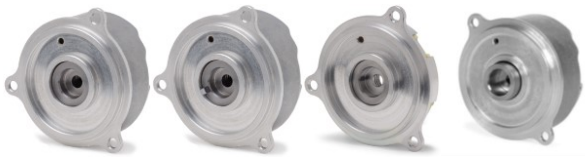
4. Standards and ID-numbers for SIL2 encoders / Normen und Identnummern für SIL2 Drehgeber:

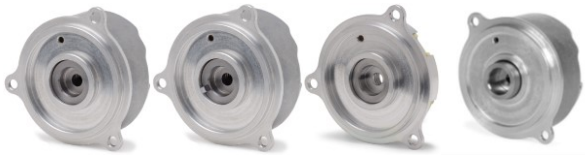
a. Standards / Normen:

No. Lfd. Nr.	Standards met by all devices Von allen Geräten erfüllte Standards
1	EN ISO 13849-1:2015 (Cat. 3, PL d)
2	EN 61508-1:2010 (SIL2)
3	EN 61508-2:2010 (SIL2)
4	EN 61800-5-2:2017
5	IEC 61800-5-3:2021

No. Lfd. Nr.	Standards not met by all devices (where applicable marked in List of devices) Standards nicht von allen Geräten erfüllt (wo zutreffend in Liste gekennzeichnet)	Labelling Kennzeichnung
6	Applicable only with additional measures: EN 61508-1:2010 (SIL3), EN 61508-2:2010 (SIL3) EN ISO 13849-1:2015 (Cat. 4, PL e)	A

b. List of certified R56 inductive encoders with serial EnDat 2.2 interface / Liste der zertifizierten induktiven R56 Drehgeber mit serieller EnDat 2.2 Schnittstelle:

Ident No. Ident Nr.	Product name Produktbezeichnung	Suited for safety-related applications up to SIL 3 when coupled with additional measures
Exl 13xx Gen. 3		
1304401-01	ECI1319 16 5MS16-C9 K 0,00 .. 44H 0YB 20 B6 .. .. D EnDat22 37 01 FS	A
1304401-51	ECI1319 16 5MS16-C9 K 0,00 .. 44H 0YB 20 B6 .. .. D EnDat22 37 24 FS	A
810661-01	ECI1319 16 5MS16-C9 A 0,00 .. 44C 0YA 00 01 .. .. D EnDat22 37 01 FS	A
810661-02	ECI1319 16 5MS16-C9 K 0,00 .. 44C 0YA 20 01 .. .. D EnDat22 37 01 FS	A
810661-03	ECI1319 16 5MS16-C9 K 0,00 .. 44A 0YA 20 01 .. .. D EnDat22 37 01 FS	A
810661-04	ECI1319 16 5MS16-C9 K 0,00 .. 1KE 0YA 20 01 .. .. D EnDat22 37 01 FS	A
810661-05	ECI1319 16 5MS16-C9 K 0,00 .. 1KE 0YA 20 01 .. .. D EnDat22 37 05 FS	A
810661-06	ECI1319 16 5MS16-C9 K 0,00 .. 44C 0YA 20 01 .. .. D EnDat22 37 05 FS	A
810661-07	ECI1319 16 5MS16-C9 A 0,00 .. 44C 0YA 00 01 .. .. D EnDat22 37 05 FS	A
810661-08	ECI1319 16 5MS16-C9 K 0,00 .. 44C 0YA 20 B6 .. .. D EnDat22 37 05 FS	A
1303257-01	EQI1331 16 5MS16-C9 K 0,00 .. 44H 0YB 20 B6 .. .. D EnDat22 37 01 FS	A
1303257-51	EQI1331 16 5MS16-C9 K 0,00 .. 44H 0YB 20 B6 .. .. D EnDat22 37 24 FS	A

Ident No. Ident Nr.	Product name Produktbezeichnung	Suited for safety-related applications up to SIL 3 when coupled with additional measures
	ExI 13xx Gen. 3 	
810662-01	EQI1331 16 5MS16-C9 K 0,00 .. 44A 0YA 20 01 .. .. D EnDat22 37 01 FS	A
810662-03	EQI1331 16 5MS16-C9 K 0,00 .. 44C 0YA 20 01 .. .. D EnDat22 37 01 FS	A
810662-04	EQI1331 16 5MS16-C9 K 0,00 .. 1KE 0YA 20 01 .. .. D EnDat22 37 01 FS	A
810662-05	EQI1331 16 5MS16-C9 K 0,00 .. 1KE 0YA 20 01 .. .. D EnDat22 37 05 FS	A
810662-06	EQI1331 16 5MS16-C9 K 0,00 .. 44C 0YA 20 01 .. .. D EnDat22 37 05 FS	A
810662-07	EQI1331 16 5MS16-C9 K 0,00 .. 44C 0YA 20 B6 .. .. D EnDat22 37 05 FS	A

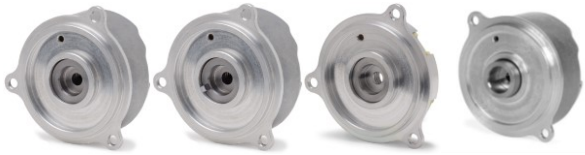
Ident No. Ident Nr.	Product name Produktbezeichnung	Suited for safety-related applications up to SIL 3 when coupled with additional measures
	ExI 13xx Gen. 3.1 	
1230275-01	EBI1335 16 5MS16-RY K 0,00 .. 44C 0YA 20 01 .. .. D EnDat22 65 01 FS	A
1230275-02	EBI1335 16 5MS16-RY K 0,00 .. 44A 0YA 20 01 .. .. D EnDat22 65 01 FS	A

Ident No. Ident Nr.	Product name Produktbezeichnung	Suited for safety-related applications up to SIL 3 when coupled with additional measures
	ExI 13xx Gen. 5.0 	
1330344-01	ECI 1323 SE. EnDat22 FS 5MS16-C9 K 44C 0YA 20 01 .. D 37 23 0 0 01	A
1330344-51	ECI 1323 SE. EnDat22 FS 5MS16-C9 K 44C 0YA 20 01 .. D 37 23 0 0 05	A
1330345-01	EQI 1335 SE. EnDat22 FS 5MS16-C9 K 44C 0YA 20 01 .. D 37 23 12 0 01	A
1330345-51	EQI 1335 SE. EnDat22 FS 5MS16-C9 K 44C 0YA 20 01 .. D 37 23 12 0 05	A

c. List of certified R56 inductive encoders with serial EnDat 3 interface / Liste der zertifizierten induktiven R56 Drehgeber mit serieller EnDat 3 Schnittstelle:

Ident No. Ident Nr.	Product name Produktbezeichnung	Suited for safety-related applications up to SIL 3 when coupled with additional measures
	ExI 13xx Gen. 4.0 	
1286377-01	ECI1319 16 5MS16-5u K 44C 0YA 20 01 E30-R2 84 01 FS	A
1286377-02	ECI1319 16 5MS16-5u A 44C 0YA 00 01 E30-R2 84 01 FS	A
1286377-05	ECI1319 16 5MS16-5u K 1KE 0YA 20 01 E30-R2 84 05 FS	A
1286377-06	ECI1319 16 5MS16-5u K 44A 0YA 20 01 E30-R2 84 01 FS	A
1286377-51	ECI1319 16 5MS16-5u A 44C 0YA 00 01 E30-R2 84 05 FS	A
1286378-01	EQI1331 16 5MS16-5u K 44C 0YA 20 01 E30-R2 84 01 FS	A
1286378-02	EQI1331 16 5MS16-5u K 1KE 0YA 20 01 E30-R2 84 01 FS	A
1286378-05	EQI1331 16 5MS16-5u K 1KE 0YA 20 01 E30-R2 84 05 FS	A
1286378-06	EQI1331 16 5MS16-5u K 44A 0YA 20 01 E30-R2 84 01 FS	A

d. List of certified R56 inductive encoders with DRIVE-CLiQ interface / Liste der zertifizierten induktiven R56 Drehgeber mit DRIVE-CLiQ Schnittstelle:

Ident No. Ident Nr.	Product name Produktbezeichnung	FW Version	Comment
	ExI 13xxS Gen. 3.1 		
1222049-01	ECI1319S 16 5MS16-XN K 44C 0YA 20 01 .. DQ01 39 01 FS	01.32.27.15	-
1222049-02	ECI1319S 16 5MS16-XN K 44A 0YA 20 01 .. DQ01 39 01 FS	01.32.27.15	-
1222051-01	EQI1331S 16 5MS16-XN K 44C 0YA 20 01 .. DQ01 39 01 FS	01.32.27.15	-
1222051-02	EQI1331S 16 5MS16-XN K 44A 0YA 20 01 .. DQ01 39 01 FS	01.32.27.15	-
1222051-51	EQI1331S 16 5MS16-XN K 44C 0YA 20 01 .. DQ01 39 05 FS	01.32.27.15	-
1222052-01	EQI1331S 16 5MS16-XN K 44H 0YB 20 B6 .. DQ01 39 01 FS	01.32.27.15	-
1222052-51	EQI1331S 16 5MS16-XN K 44H 0YB 20 B6 .. DQ01 39 24 FS	01.32.27.15	-
1304415-01	ECI1319S 16 5MS16-XN K 44H 0YB 20 B6 .. DQ01 39 01 FS	01.32.27.15	-
1304415-51	ECI1319S 16 5MS16-XN K 44H 0YB 20 B6 .. DQ01 39 24 FS	01.32.27.15	-

5. Standards and ID-numbers for SIL3 encoders / Normen und Identnummern für SIL3 Drehgeber:

a. Standards / Normen:

No. Lfd. Nr.	Standards met by all devices Von allen Geräten erfüllte Standards
101	EN ISO 13849-1:2015 (Cat. 3, PL e)
102	EN 61508-1:2010 (SIL3)
103	EN 61508-2:2010 (SIL3)
104	EN 61800-5-2:2017
105	IEC 61800-5-3:2021

b. List of certified R56 inductive encoders with serial EnDat 3 interface: Liste der zertifizierten induktiven R56 Drehgeber mit serieller EnDat 3 Schnittstelle:

Ident No. Ident Nr.	Product name Produktbezeichnung
	ExI 13xx Gen. 5.0 
1386797-01	ECI 1323 SE. E30-R2 FS 5MS16-5u K 44C 0YA 20 01 .. D 84 23 0 0 01
1386797-51	ECI 1323 SE. E30-R2 FS 5MS16-5u K 44C 0YA 20 01 .. D 84 23 0 0 05
1386798-01	EQI 1335 SE. E30-R2 FS 5MS16-5u K 44C 0YA 20 01 .. D 84 23 12 0 01
1386798-51	EQI 1335 SE. E30-R2 FS 5MS16-5u K 44C 0YA 20 01 .. D 84 23 12 0 05

6. Version History / Versionshistorie:

Revision:	Name:	Date: Datum:	Changes / History: Änderungen / Historie
1.0	K. Leupold	28.03.2018	Initial Version (HT84759T, Rev. 1.1)
1.1	K. Leupold	04.12.2018	New variants with DQ interface, new ExI13xx Gen. 3.1 (HT93258T9
1.2	G. Neumann	30.11.2020	New ExI13xx Gen. 4 and additional models for Gen 3 / 3.1 (HT95888T)
1.3	M. Braun	06.03.2023	Update of EC-Type Examination Certificate (HT100242T)
1.4	M. Braun	25.01.2024	New ExI13xx Gen. 5.0 EnDat 2.2 (HT101939T)
1.5	M. Braun	27.01.2025	New ExI13xx Gen. 5.0 EnDat 3 (HT104233T)

	Release by Test Body: Freigabe Prüfstelle:	Release by Certification Body: Freigabe Zertifizierstelle:	Release by Manufacturer: Freigabe Hersteller:
Date: Datum:	Martin Braun 2025.01.27 08:40:41 +01'00'	Peter Weiß 2025.01.27 16:28:33 +01'00'	
Signature: Unterschrift:			