



List of certified products Encoder Series R35 optical:
Liste der geprüften Produkte Geberfamilie R35 optisch:

EC-Type Examination Certificate No.: M6A 020196 0308 Rev. 00

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Manufacturer / Hersteller

Test body / Prüfstelle

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**Annex of the Report
on the
Certificate
M6A 020196 0308 Rev. 00**

**Safety related Encoder Series R35 optical
Geberfamilie R35 optisch**

**Report No.: HT91865C-A
Revision 1.2 dated 16.01.2023**

1. Standards

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



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**2. 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.

Restrictions:

The use of some encoders with EnDat 2.2 interface is restricted:

As single-encoder system for monitoring functions

- SIL 1 according to EN 61508
- Category 2 PL c according to EN ISO 13849-1:2015

As single-encoder system for closed-loop functions

- SIL 2 according to EN 61508
- Category 3, PL d according to EN ISO 13849-1:2015

If applicable the restriction is given for each encoder separately in the tables in chapter 4.



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**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.




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4. List of certified R35 optical encoders with serial EnDat 2.2 interface:
Liste der zertifizierten optischen R35 Drehgeber mit serieller EnDat 2.2 Schnittstelle:

Ident No. Ident Nr.	Product name Produktbezeichnung	Restricted to SIL 1, PL c, Cat. 2 for monitoring functions?
ExN 11xx		
743586-01	ECN 1123 512 5PS15-T9 K 0,00 .. 1KA75A 40 01 D EnDat22 37 01 FS	Yes
743586-03	ECN 1123 512 5PS15-T9 K 0,00 .. 1KC75A 40 01 D EnDat22 37 01 FS	Yes
743586-51	ECN 1123 512 5PS15-T9 K 0,00 .. 1KA75A 40 01 D EnDat22 37 02 FS	Yes
743587-01	EQN 1135 512 5PS15-T9 K 0,00 .. 1KA75A 40 01 D EnDat22 37 01 FS	Yes
743587-03	EQN 1135 512 5PS15-T9 K 0,00 .. 1KC75A 40 01 D EnDat22 37 01 FS	Yes
743587-51	EQN 1135 512 5PS15-T9 K 0,00 .. 1KA75A 40 01 D EnDat22 37 02 FS	Yes
743587-53	EQN 1135 512 5PS15-T9 K 0,00 .. 1KC75A 40 01 D EnDat22 37 02 FS	Yes

5. List of certified R35 optical encoders with serial DRIVE-CLiQ interface:
Liste der zertifizierten optischen R35 Drehgeber mit serieller DRIVE-CLiQ Schnittstelle:

Ident No. Ident Nr.	Product name Produktbezeichnung	Comment
ExN 11xxS		
1211015-02	ECN 1123S 512 5PS15-XI K 0,00 .. 1KA75A 40 01 D DQ01 39 01 FS	
1211017-02	EQN 1135S 512 5PS15-XI K 0,00 .. 1KA75A 40 01 D DQ01 39 01 FS	



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6. Version History:
Versionshistorie:

Revision:	Name:	Date: Datum:	Changes / History: Änderungen / Historie
1.0	K. Leupold	23.01.2019	Initial Version
1.1	K. Leupold	15.05.2019	New DQ variant ExN11xxS, modified EnDat variant Modification report HT93683T
1.2	M. Braun	16.01.2023	Update of EC-Type Examination Certificate

	Release by Test Body: Freigabe Prüfstelle:	Release by Certification Body: Freigabe Zertifizierstelle:	Release by Manufacturer: Freigabe Hersteller:
Date: Datum:			
Signature: Unterschrift:			