

**Renishaw plc**

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## FUNCTIONAL SAFETY CERTIFICATE

Renishaw plc declares that, under the terms of CSA SIRA functional safety certificate SIRA CASS00023/01, for the management of functional safety activities up to SIL3/PLd, the:

TONiC™ FS linear (T3xxx series) and TONiC™ FS rotary (T4xxx series) readheads with up to 10m cable length:

- when directly connected to the TONiC analogue interface (Ti 0000 A 00 A),
- or
- when directly connected to the Dual Output (DOPxxxx series) interface using the analogue function only,
- or
- when directly connected to an evaluation unit,

and when used with the relevant scale types of:

Rotary:

- RES#<sup>1</sup> A and B section, minimum 52 mm diameter,

Linear:

- REL# and RSL# adhesive mounted,
- RTLC20-S using end covers,
- RTLC20 with FASTRACK™ using end covers

and when used with Renishaw approved extension cables up to 50m long,

have been independently assessed by the Renishaw plc Functional Safety Authority and have been found to meet the requirements of:

- BS EN IEC 61508-1:2010, BS EN IEC 61508-2:2010 and BS EN IEC 61508-3:2010
- BS EN 61800-5-2:2017 (IEC 61800-5-2:2016)
- BS EN ISO 13849-1:2015 and BS EN ISO 13849-2:2012

when used as an element / subsystem for use in safety related systems performing safety functions up to and including:

- SIL2 with HFT = 0 (1001),
- Category 3, PLd.

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<sup>1</sup> # represents the reference mark option character. More than one variant of reference mark is offered on some scale types. The reference mark function is not covered by this certificate

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Functional safety certificate number FSC001-01

Notes:

- This product must not be put into service until it has been installed and commissioned in accordance with the instructions detailed by the relevant functional safety installation guide and safety manual:
    - Rotary systems:
      - M-6688-9043 TONiC FS RESM.
    - Linear systems:
      - M-6688-9046 TONiC FS REL-RSL,
      - M-6688-9044 TONiC FS RTLC20-S,
      - M-6688-9047 TONiC FS RTLC20 with FASTRACK.
  - For full details of the safety function, the functional safety data, fault exclusions and the limitations of use, see the above documents.
  - The above documents can be accessed at [www.renishaw.com/fsencoders](http://www.renishaw.com/fsencoders).
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The person authorised to conduct the functional safety assessment and issue the functional safety certificate is:

Martin Curtis

Functional Safety Authority (Encoder Products Division)

Renishaw plc, New Mills, Wotton-under-Edge, Gloucestershire, GL12 8JR, United Kingdom.

27/08/2019

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Martin Curtis

Functional Safety Authority (EPD)

Signed by: Martin Curtis

Place: Wotton-under-Edge

This certificate is valid until 1<sup>st</sup> September 2024.

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Functional safety certificate number FSC001-01