AMO - GmbH

FANUC - Serial Interface
CERTIFICATE

AMO GmbH certifies herewith based on the FANUC Servo Laboratory Test report from 08.09.13 that the AMO Absolute encoders (see www.amo-gmbh.com) in rotary and linear configuration are compatible with the proprietary Fanuc Serial output interface protocol type "α"

9-August-2013

1/4

AMO – GmbH

Nöfing 4, 4963 St.Peter am Hart

Austria

1) Absolut linear Encoder Typ LMKA

TYPE : **LMKA-13103.1NN-1,0-5**

SN. : 1280033-120

Interface format : Linear Encoder format (α interface)

Result : **O.K.**

【Evaluation result】

　　There is no problem about communication.

Contents of evaluation

1. Serial Data Format　　　　**O.K.**

Position Data (37 bit)　　1st word bF～bB, 2nd word, and 3rd word

ID Data (6bit)　　　　　　4th word bF～bA = 110000

Free Data (10bit)　　　　4th word b9～b0

2. Communication Mode　　**O.K.**

It is confirmed that sample3 corresponds to 1MHz/250µs, 1MHz/125µs, 2MHz/125µs and
2MHz/62.5µs communication mode.

■ - extract of the FANUC Test report for AMO Encoders from 09th of August 2013

2) AMO – Absolute rotary encoders with binary (2^n) number of pulses/revolution

TYPE   : **WMKA-20103.11N-0256-1,0-5**

SN.   : 1280031-120

Interface format : High resolution format B (α interface)

Result   : **O.K.**

【Evaluation result】

There is no problem about communication.

Contents of evaluation

1. Serial Data Format   **O.K.**

Position Data (29 bit) 2nd word bF～b3 and 3rd word

ID Data (6bit) 4th word bF～bA = 101000

Free Data (10bit) 4th word b9～b0

2. Communication Mode   **O.K.**

It is confirmed that sample1 corresponds to 1MHz/250μs, 1MHz/125μs, 2MHz/125μs and 2MHz/62.5μs communication mode.

■ - extract of the FANUC Test report for AMO Encoders from 09th of August 2013

3) AMO – Absolute rotary encoders with non-binary number of pulses/revolution

TYPE   : **WMKA-20103.11N-0360-1,0-5**
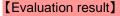
SN.   : 1280032-120

Interface format : Linear Encoder format(α interface)

Result   : There is no problem about communication.

However the encoder must be used only with incremental mode. Because FANUC CNC is not compatible with non-binary absolute rotary encoder.

【Evaluation result】

There is no problem about communication. However, CNC software is not available for non-binary absolute rotary encoder. So, there is some restriction in use as follows. Non-binary absolute rotary encoder must be only used in incremental mode. And, when power for CNC is turned off, power for encoder must be also turned off. Because, when revolution counter of non-binary absolute rotary encoder rolled over, the position data at the reference point of the encoder doesn't become all zero. So, in case that only power for CNC is turned on and off at operation, there is a possibility that incorrect position is displayed on screen of CNC.

Contents of evaluation

1.   Serial Data Format   **O.K.**
     Position Data (37 bit) 1st word bF～bB, 2nd word, and 3rd word
     ID Data (6bit) 4th word bF～bA = 110000
     Free Data (10bit) 4th word b9～b0

2.   Communication Mode   **O.K.**
     It is confirmed that sample2 corresponds to 1MHz/250μs, 1MHz/125μs, 2MHz/125μs and 2MHz/62.5μs communication mode.

■ - extract of the FANUC Test report for AMO Encoders from 09th of August 2013