MAN01-15 – CRYO SAMPLE ROTATOR (CSR) USER MANUAL

CRYO & NANO PRODUCTS

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RELEVANT DOCUMENTATION

Ref	Title, Author
[1]	CNP_MAN00_Rxx_Getting-Started.pdf (JPE)
[2]	CNP_MAN02_Rxx_Software-User-Manual.pdf (JPE)
[3]	CNP_APN01_Rxx_Connection-Overview.pdf (JPE)
[4]	CSR_Interface-drawings.pdf (JPE)
[5]	CSR_Brochure.pdf (JPE)

DOCUMENT HISTORY

JPE	2022-11-28	R01. Creation.

DEFINITIONS

ABBREVIATIONS

1. INTRODUCTION

Thank you for using JPE's Cryo & Nano Products!

This *User Manual* describes the handling and use of Cryo Sample Rotator (CSR), from here on described as *positioner*).

Please read this document carefully prior to installation and (initial) operation of the controller, (stand-alone) positioners, actuators and stages. Failure to observe the safety regulations results in a risk of electric shock and/or damage to the controller(s), positioner(s), actuator(s) and/or stage(s)!

JPE shall not be liable for damage or injury resulting from misuse of the controller(s), positioner(s), actuator(s) and/or stage(s) or unauthorized alterations to either of those.

All products mentioned in this manual are intended for use in a laboratory and/or scientific research environment only and may only be installed, maintained and used by higher educated, technical skilled personnel (from here on described as *operators*).

Please note that all content in this document is superseded by any new versions of this document. Visit the JPE website (www.jpe-innovations.com) to obtain the most recent version. All images in this document are for illustrative purposes only.

1.1 Prerequisites

Before continuing with this user manual, please make sure to read and understand the contents of the (latest version of the) Cryo & Nano Positioning Products Getting Started Guide (MAN00).

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2. INSIDE THE BOX

Positioners will be delivered in a white-colored (membrane) polypropylene box (one or more positioner(s) per box). The inner part of the polypropylene box can be taken out and bend in such way that the positioner(s) can be easily unpacked.

Do not cut the membrane plastic. Keep the box in case products need to be returned.

Unpacking positioners with a Sensor (product model -RRS) require a bit more attention as it can be easy to damage cabling (flex PCB) or connectors.

3. MOUNTING INSTRUCTIONS

Consult the Interface Drawing for detailed dimensions and mounting interfaces.

Make sure the wiring to the Connector Interface PCB and/or sensor (product model -RRS) does not get damaged or stuck in the setup when mounting the positioner in the customer setup. All connectors must be mounted properly prior to connecting the positioner to the electronics!

4. CONNECTION TO THE CONTROLLER

Consult the Connection Overview application note for a simple and clear overview on how to connect positioners to the controller.

4.1 Drive signal

All positioners are assembled with ~150[mm] Kapton coated wire and a Connector Interface PCB at the end with a 2-pin 2.54mm pitch header mounted (*Molex KK 22-05-7028*). There are two mounting holes available for M2 bolts.

Figure 1: CSR with Connector Interface PCB

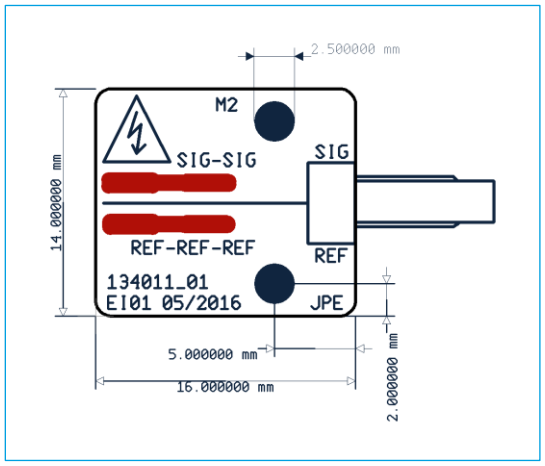

Figure 2: Connector Interface PCB (top view)

The Ambient Cable (ACL) or Cryostat Cable (CCL) can be connected directly to the Connector Interface PCB. If any custom cabling is required, please consult the Getting Started Guide (MAN00) or the Connection Overview application note (APN01).

Pin configuration		
Pin	Name	Note
1	(Piezo) Signal	Routes to the pad labeled "S" or "SIG" on the actuator
2	(Piezo) REF	Routes to the pad labeled "R" or "REF" on the actuator

Make sure that there is no force applied to the wires connected to the positioner!

Please note that (Piezo) REF is NOT the same as (system) GND or PE, so do not connect these to each other and do not use standard oscilloscope probes!

Because of design constraints, open voltage contacts are present!

4.2 Position sensor signal

If the positioner is equipped with a Resistive Rotary Sensor (product model –RRS), the positioner will be assembled with an additional ~150[mm] Kapton FPC (flexible PCB) that can connect directly to the Cryostat Cable for Resistive sensors (CCR) or Ambient Connector Kit for RSM (I1-RSM).

If any custom cabling is required, please consult the Getting Started Guide (MAN00) or the Connection Overview application note (APN01).

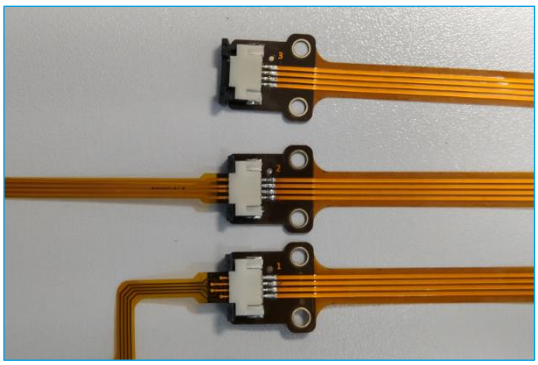

Figure 3: FPC (left) connected to ZIF connectors on the CCR (right)

Pin configuration		
Pin	Name	RRS PCB Reference
1	Wiper Negative	A
2	Excitation Positive	B
3	Wiper Positive	C
4	Excitation Negative	D

Make sure that there is no force applied to the FPC connected to the sensor! The FPC is designed for easy connection at (re-)installation; however, it's recommended to disconnect or reconnect only when required.

4.3 Connecting to Controller

Controller with Plug-in Modules [1]		
	Module	Slot #
CSRx(-RRS)	CADM2 Output	1
CSRx-RRS	RSM Input A	2

[1] For available Modules see CNP-Products MAN01-09 (CPSC).

5. DECLARATION OF CONFORMITY

Manufacturer	:	JPE B.V.
Address	:	Aziëlaan 12 6199 AG Maastricht-Airport The Netherlands

The manufacturer hereby declares that the product:

Product Name	:	**Cryo Sample Rotator (CSR)**
Product Description	:	**Compact, non-magnetic rotational positioner with high torque output and load capacity.**
Product Number	:	**C211496**

Complies with the following European directives:

2014/35/EU	**Low Voltage Directive**
2014/30/EU	**EMC Directive**
2011/65/EU	**RoHS**

A copy of the Technical file for this equipment is available at JPE.

Maastricht-Airport, 28 November 2022

Ir. H. Janssen
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