

CLA2201 – CRYO LINEAR ACTUATOR 2201



Features

- Smallest CLA model
- Nanometer step size
- Very large driving force
- 20 mK to 375 K, vacuum compatible
- Extreme stability due to self-locking nature
- No power dissipation when “off”
- Robust design for easy handling
- Full ceramic screw and nut
- Position feedback option -COE

Description / Applications

The CLA2201 is the smallest model in the Cryo Linear Actuator (CLA) series. A CLA can be considered as a piezo driven setscrew with high force output and very good stability, ideal for set and forget applications in a cryo-vacuum environment. Piezo ceramics in the disc-shaped head generate torque pulses which cause the connected screw to rotate in the stationary nut, yielding linear motion at the ball tip. Both screw and nut are ceramic and run without coatings or lubrication.

Specifications

General information	
Type of motion	Linear, with rotating ball tip
Dimensions	See drawings below
Operational environmental conditions	20 mK to 375 K, ambient to UHV
Weight	25 g, -COE adds 9 g
Preload	The ball tip must be axially loaded >1 N for proper operation
Stepping motion	
Travel range	12 mm, reduced to 6 mm for -COE
Velocity @ 300 K	10 µm/s
Velocity @ 4 K	5 µm/s
Minimal step size @ 300 K	5 nm
Minimal step size @ 4 K	1 nm
Drive voltage	-30 V to 120 V
Forces and load capacity	
Driving force @4 K	20 N
Holding force	100 N, self-locking
Axial stiffness	8E7 N/m typical
Materials	
Main body	Stainless steel 316L
Piezo actuator	Low voltage multilayer, ceramic insulated
Screw and nut	Ceramic, thread pitch 250 µm
Model specific information	
-COE	Cryo Optical Encoder, 710 pulses per revolution, equivalent to 352 nm axial displacement
-V, -HV or -UHV	Level of vacuum compatibility, see the glossary on the homepage for details
Electronics CPSC	
Controller Base Cabinet	CAB
Driver for stepping and scanning	CADM
Position readout	OEM

Ordering Information

Available Models

CLA2201-V	Cryo Linear Actuator size 22
CLA2201-COE-V	Cryo Linear Actuator size 22-Cryo Optical Encoder

Available Options

-HV	Upgrade to High Vacuum compatibility
-UHV	Upgrade to Ultra High Vacuum compatibility

Accessories

AKM1	Accessory Kit Mechanical 1
AKE1	Accessory Kit Electrical 1

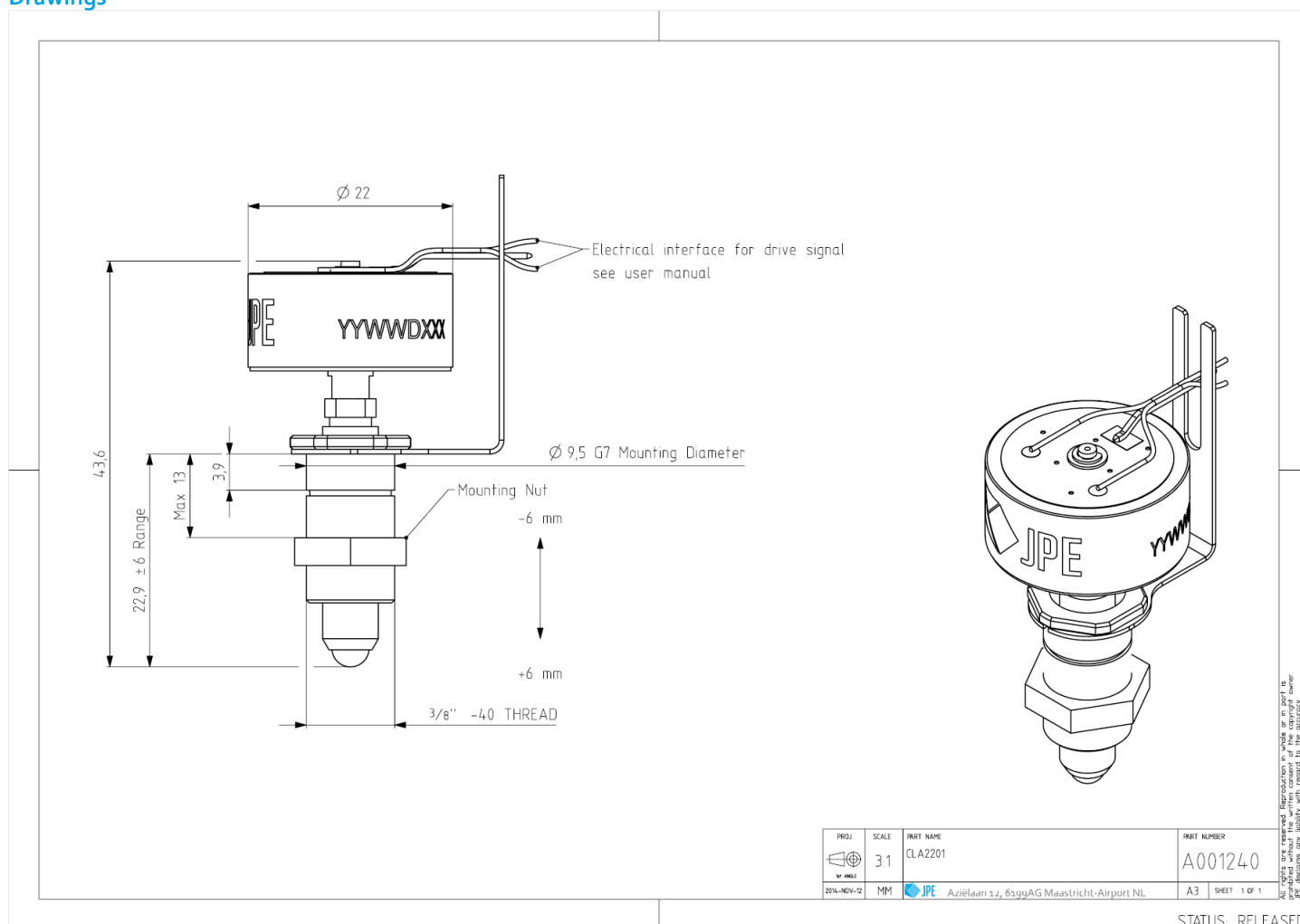
Mechanical and electrical information

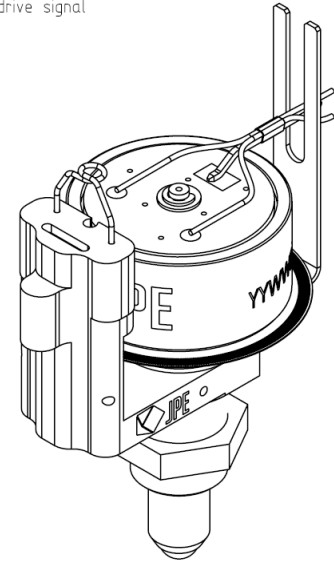
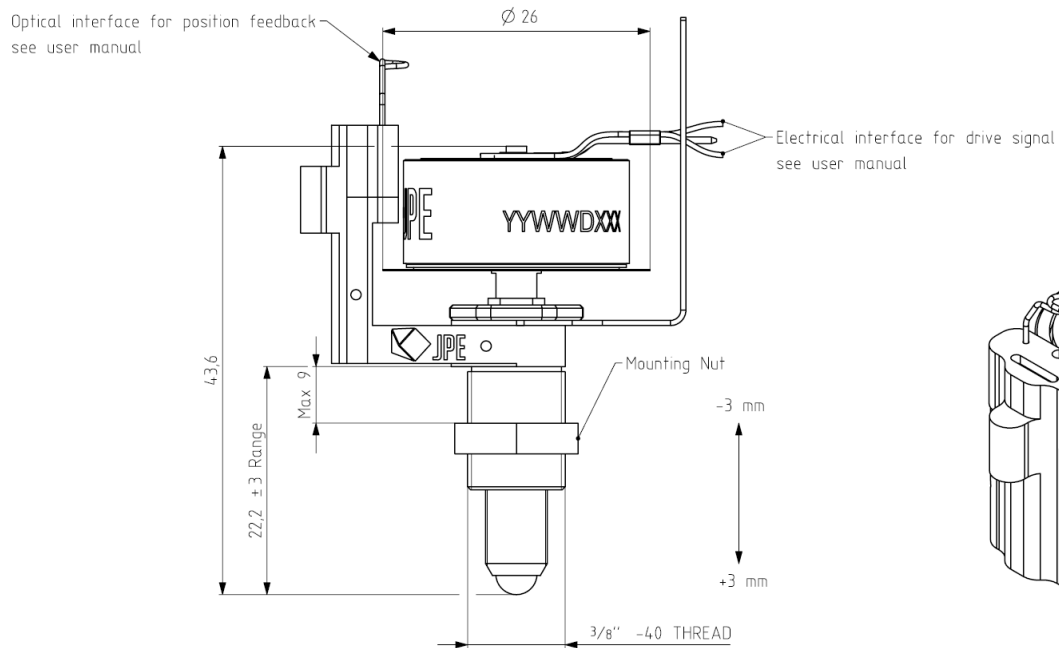
Download 3D step files and manuals from:
<https://www.jpe-innovations.com/cryo-nano-products/>

Contact

For quotations, specials, or engineering services, please contact us at:
<https://www.jpe-innovations.com/contact/>

Drawings





PROJ.	SCALE	PART NAME	PART NUMBER
20% NOV-12	3:1	CLA2201-COE	A001239
MM	JPE	Aziëlaan 12, 6199AG Maastricht-Airport NL	A3 SHEET 1 OF 1

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