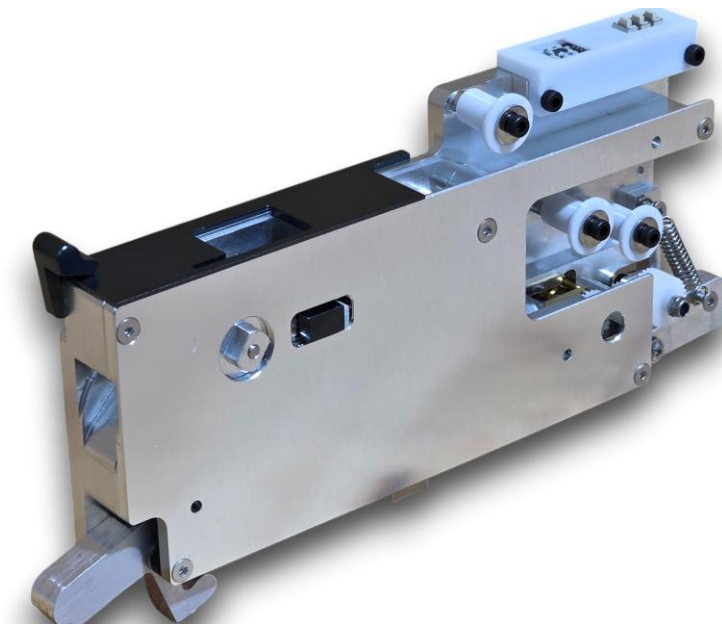


AF FEEDER V2

THE NEW STANDARD OF FEEDER



Made in VIETNAM

AF FEEDER V2 PHILOSOPHY

AFARCO AF Feeders are high-performance electronic feeders designed specifically for the **OpenPnP** ecosystem and professional desktop Pick-and-Place systems. Engineered with a "Durability-First" philosophy, we have eliminated unreliable 3D-printed components in favor of precision-engineered mechanical parts. Our feeders provide a robust, industrial-grade solution for SMT assembly lines, prototyping labs, and small-batch manufacturing.

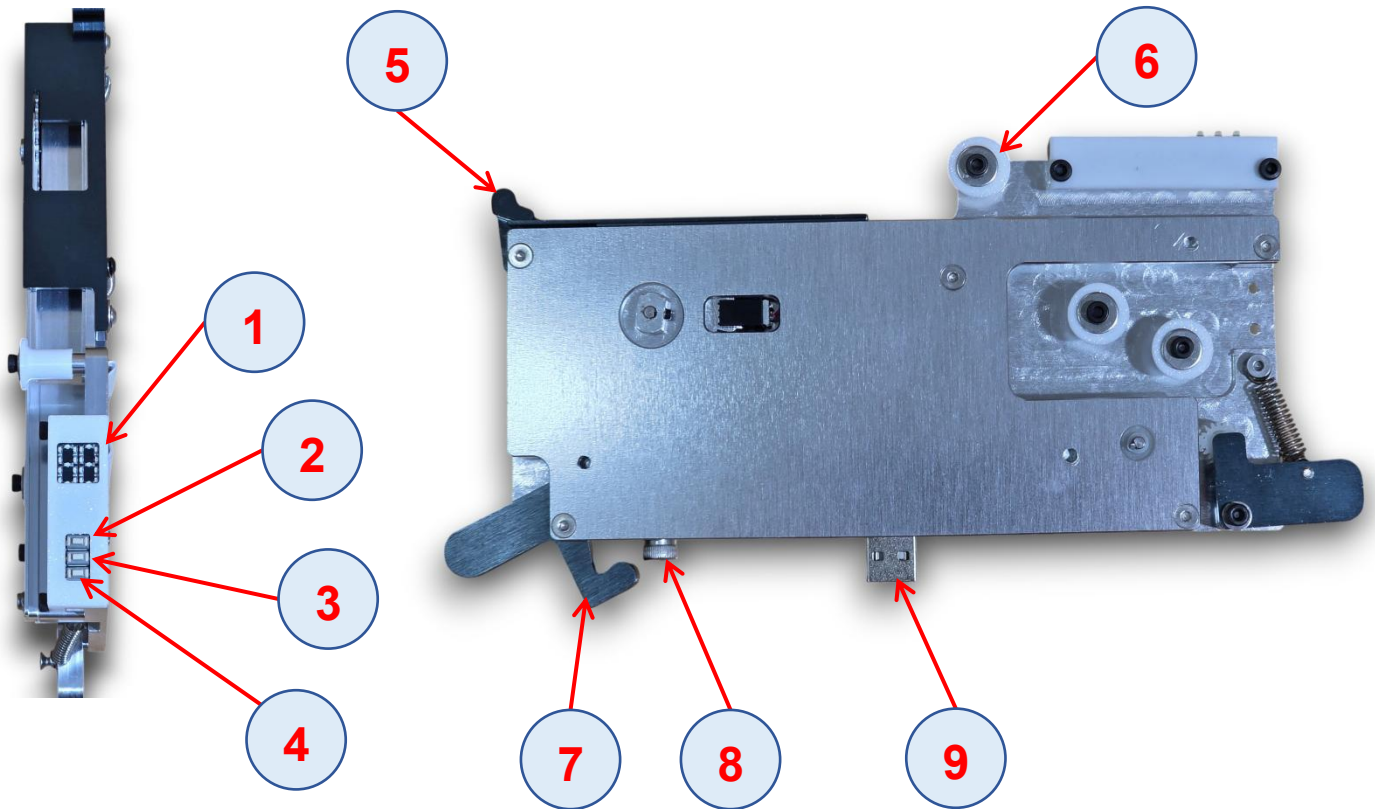
Why AFARCO?

- **Industrial-Grade Construction:** Unlike standard plastic feeders, AFARCO units feature a chassis machined from **6061 Aluminum Alloy**. The anodized finish ensures long-term wear resistance and structural rigidity.
- **Precision Drive System:** Equipped with high-torque DC motors and custom-machined metal gears. This eliminates the "slop" and jitter common in plastic drive systems, ensuring consistent tape advancement.
- **Smart Communication:** Features an integrated **RS485 interface**, allowing for reliable daisy-chaining of multiple units. The onboard display and tactile buttons allow for manual indexing and parameter adjustments without needing a PC.
- **Seamless Integration:** Fully compatible with **OpenPnP (v2.4 & v2.6)**. Supports a wide range of tape widths including 8mm, 12mm, 16mm, and 24mm.

TECHNICAL SPECIFICATIONS

	AF FEEDER V2
Frame Material	CNC Machined 6061 Aluminum (Anodized)
Motor Type	High-torque DC Motor
Engine parameters	12VDC 3W 0.2N.m
Tape Compatibility	8mm, 12mm, 16mm, 24mm (Paper & Plastic)
Communication Protocol	RS485 / Custom Controller Support
Software Support	OpenPnP
Step length	2mm, 4mm, 8mm, 12mm, 16mm, 24mm

1	7 segment LED
2	Button UP
3	Button DOWN
4	Button MODE
5	Lock tape
6	Guide roller
7	Locks to the base
8	Locking pins on the base
9	USB RS485



AF FEEDER OPERATION & INSTALLATION GUIDE

The AF Feeder control system features a digital display and three functional buttons (UP, DOWN, MODE). This guide provides detailed instructions for configuration and operation.

I. Button Functions

The buttons perform different actions depending on whether the Feeder is in Normal Operating Mode or Setting Mode.

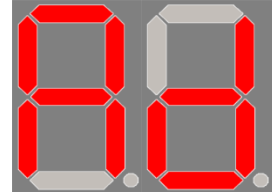
Button	Normal Operating Mode	Setting Mode (MODE)
UP	Press once : Feeds at a default of 2mm .	Increments the parameter value.
DOWN	Press twice : Feeds based on the St (Step) setting.	Decrements the parameter value.
MODE	Long press (5s): Enters Setting Mode.	Short press: Switch menus; Long press (5s): Save & Exit.

II. Configuration Parameters (MODE Menu)

To enter Setting Mode, press and hold the MODE button for 5 seconds. Use UP/DOWN to navigate through the following parameters:

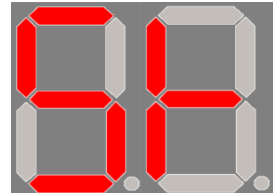
1. AD (Address)

- Definition: Sets the unique ID for the Feeder in the RS485 communication network.
- Range: 01 to 99.
- Note: Every Feeder on the same machine must have a unique address to avoid communication conflicts.



2. St (Step) - Feeding Distance

- Definition: Sets the distance the Feeder advances for each pick-and-place cycle.
- Options: 2mm, 4mm, 8mm, 12mm, 16mm, 24mm.



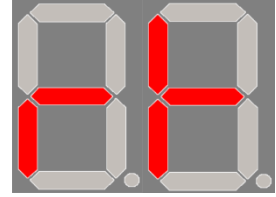
3. PE (Peel Time) - Tension Delay

- Definition: Sets the additional run-time for the Peel Motor after the Feed Motor stops. This ensures the cover tape is properly tensioned.
- Calculation: Delay (ms) = PE*10
 - *Example:* If PE = 5, the Peel Motor runs for an extra 5*10ms=50ms.
- Default: PE = 5. Adjust this based on the thickness and adhesive strength of different component tapes.



4. Rt (Response Mode) - "OK" Feedback

- Definition: Configures how the Feeder sends a "Finished" signal back to the software (e.g., OpenPnP).
- Settings:
 - Rt = 0: Sends "OK" immediately after the Feed Motor starts.
 - Rt = 1: Sends "OK" only after both Feed and Peel (PE time) operations are complete.
- *Recommended:* Use Rt = 1 to ensure perfect synchronization between the Feeder and the PnP machine's head speed.



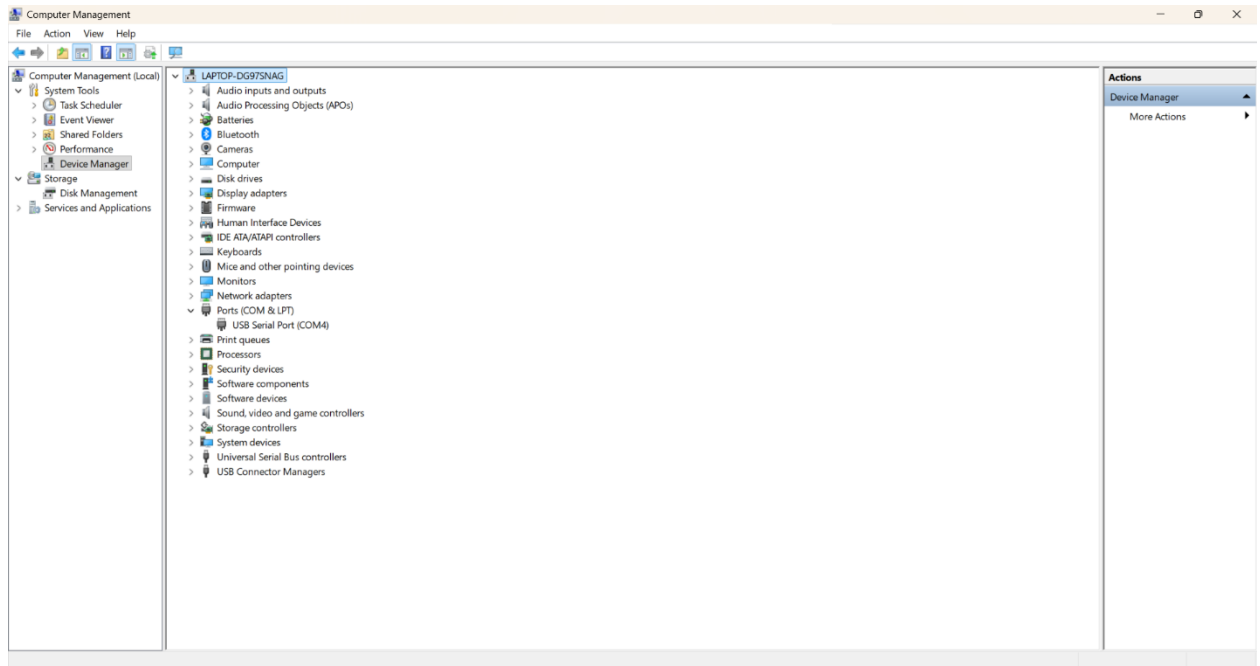
III. Standard Operating Procedure

- 1. Default Display:** Upon power-up, the screen displays the Feeder's Address (AD). The Feeder can only receive RS485 commands while on this home screen.
- 2. Adjusting Settings:**
 - Long press MODE (5s) until AD appears.
 - Press MODE briefly to cycle through parameters (AD, St, PE, Rt).
 - Use UP/DOWN to modify values.
 - Long press MODE (5s) to save settings and return to the home screen.
- 3. Manual Testing:**
 - Press UP once to verify the basic 2mm feed.
 - Press DOWN to test the custom step distance configured in St.

Pro Tip: Always verify that your RS485 wiring is secure and that no two Feeders share the same Address before starting a production run.

Configure AF Feeder with OpenPnP

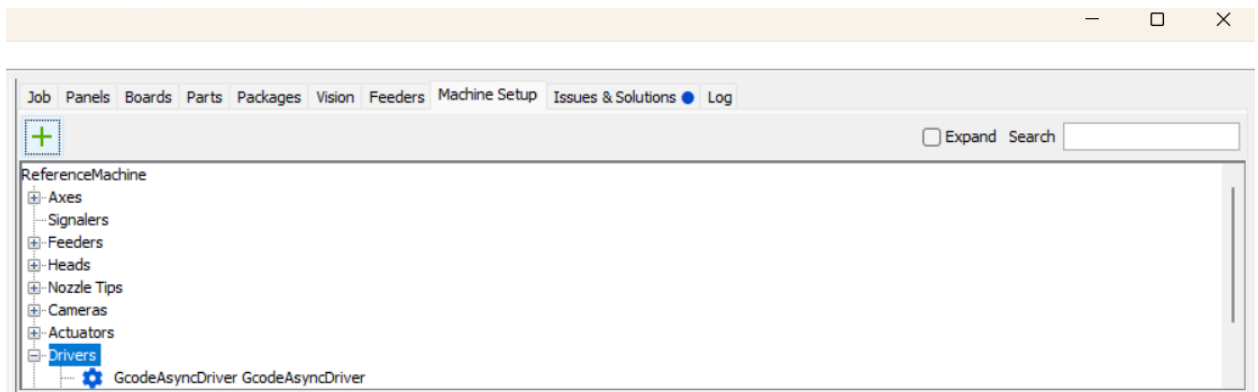
I. USB RS485 connection



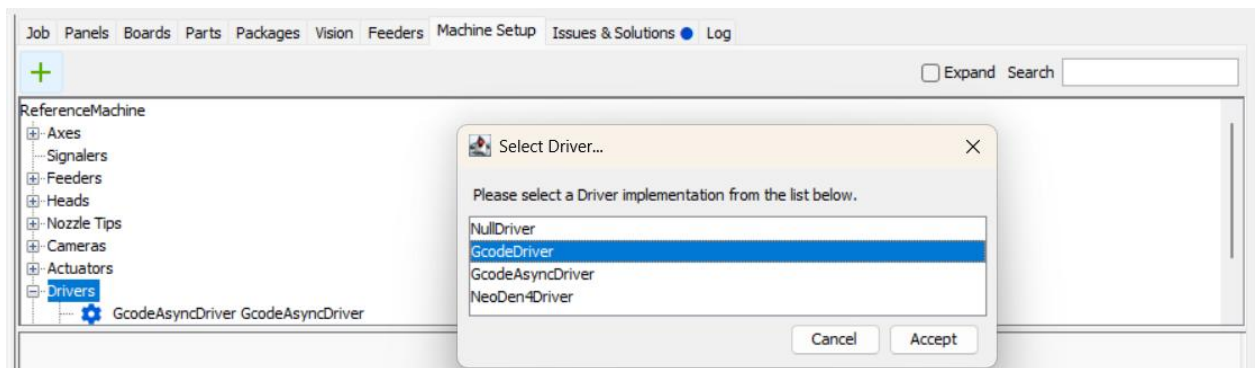
- On the Windows operating system, after connecting the USB RS485 to the computer, it is necessary to determine the COM port name displayed, in the current example it displays **COM4**.
- Other operating systems do the same.

II. Add RS485 USB driver to OpenPnP

- Access the Machine Setup > Drivers tab



- Click the "+" sign to add a driver. Select "**Gcode Driver**"



- Name the driver "AF Feeder" and select some parameters as below:

Drivers: GcodeAsyncDriver GcodeAsyncDriver
GcodeDriver AF FEEDER

Job Processors

Vision

Configuration Driver Settings Gcode Console

Properties

Name: AF FEEDER

Sync Initial Location:

Allow Unhomed Motion:

Communications method

Communications Type: serial

Keep Alive:

Line-Endings: LF

Serial Port

Port: COM4

Baud: 115200

Parity: None

Data Bits: Eight

Stop Bits: One

Flow Control: Off

Set DTR:

Set RTS:

Drivers: GcodeAsyncDriver GcodeAsyncDriver
GcodeDriver AF FEEDER

Job Processors

Vision

Configuration Driver Settings Gcode Console

Settings

Motion Control Type: ToolpathFeedRate

Command Timeout [ms]: 2000 Units: Millimeters

Connect Wait Time [ms]: 150 Max. Feed Rate [/min]: 1000

\$-Command Wait Time [ms]: 50

Letter Variables? Allow Pre-Move Commands?

Compress G-code? Compression Exclude Characters: [] "

Remove Comments? Backslash Escaped Characters?

Log G-code?

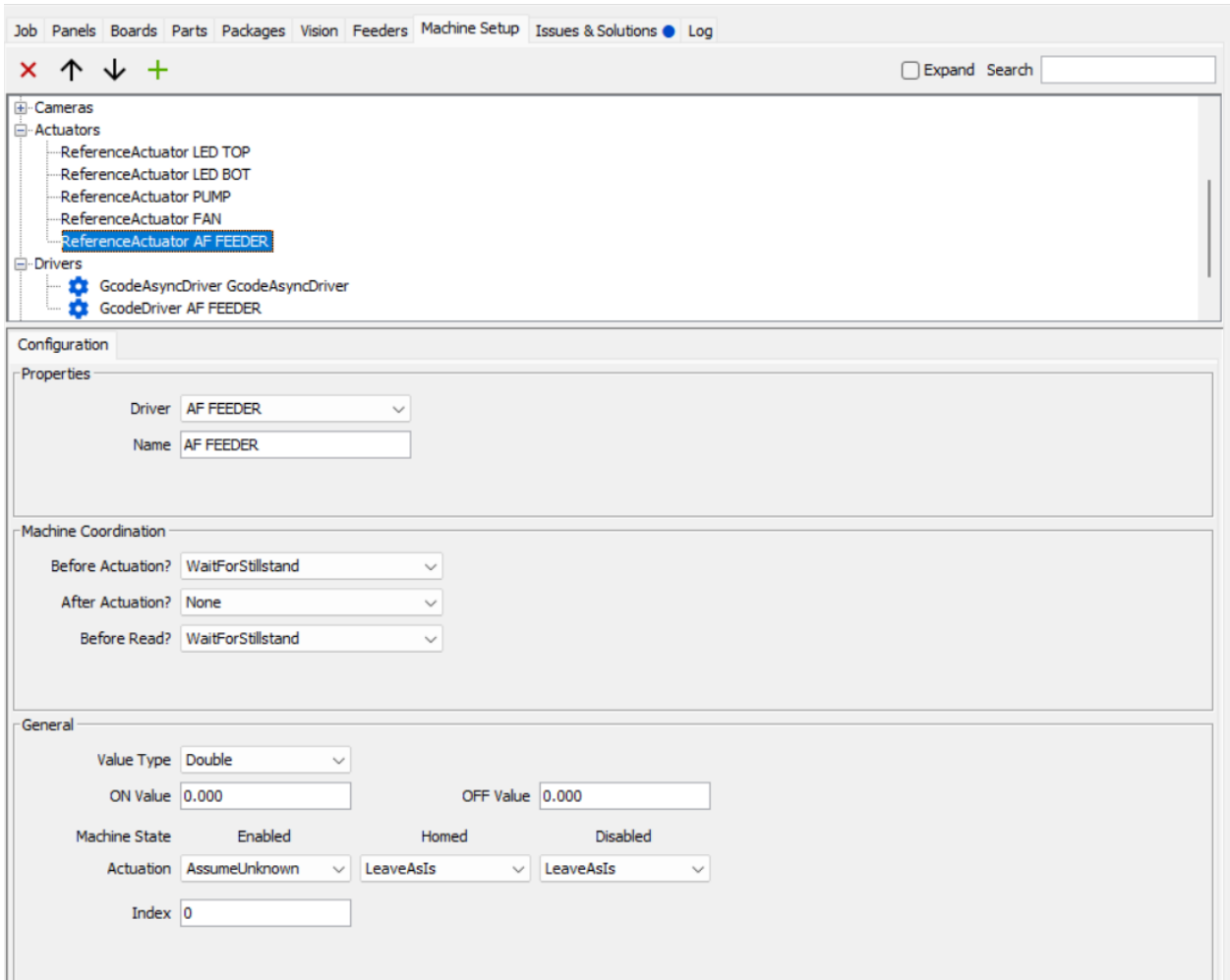
Send FeedRate On Change Only?

Send Acceleration On Change Only?

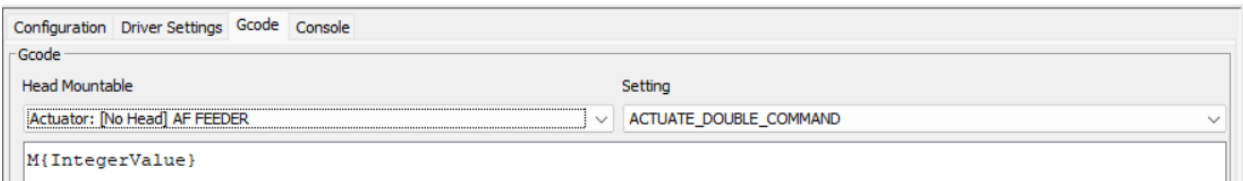
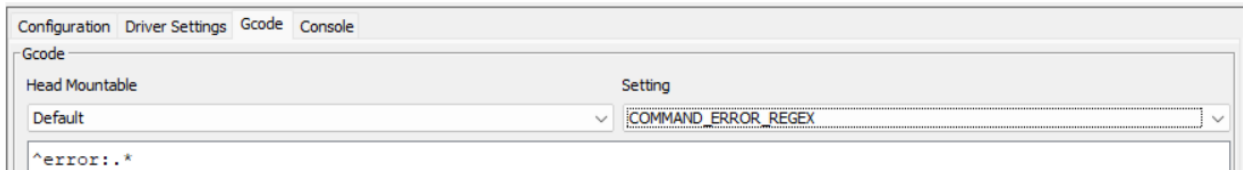
Send Jerk On Change Only?

Detect Firmware

- Configuring Actuators for AF Feeder: Machine Setup > Actuators > Create a New Actuators > Select Reference Actuators
- Change some settings in the newly created Actuators:
 - Driver: Select “AF Feeder”
 - Name: AF Feeder
 - Value Type: Double



- Configure Gcode for AF Feeder: Machine Setup > Drivers > Gcode Driver AF Feeder >Gcode
 1. **Head Mountable: Default:**
 - COMMAND_CONFIRM_REGEX: “**^ok.***”
 - COMMAND_ERROR_REGEX: “**^error:.***”
 2. **Head Mountable: Actuator [No Head] AF Feeder:**
 - ACTUATE_DOUBLE_COMMAND: “**M{IntegerValue}**”



AF Feeder V2: Fully automatic feeder for AFARCO PnP V3.2

- Simple operation with OpenPnP via RS485 communication
- Save time during use thanks to quick assembly and disassembly structure
- Machined by CNC aluminum alloy, with absolute precision
- Supports smallest size 0201, works well with paper and plastic component rolls thanks to the compression mechanism
- Intelligent control circuit with optical sensor, precise position control algorithm



CONTACT & ORDERS

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