

Automatic Powder Trickler

by Adam MacDonald

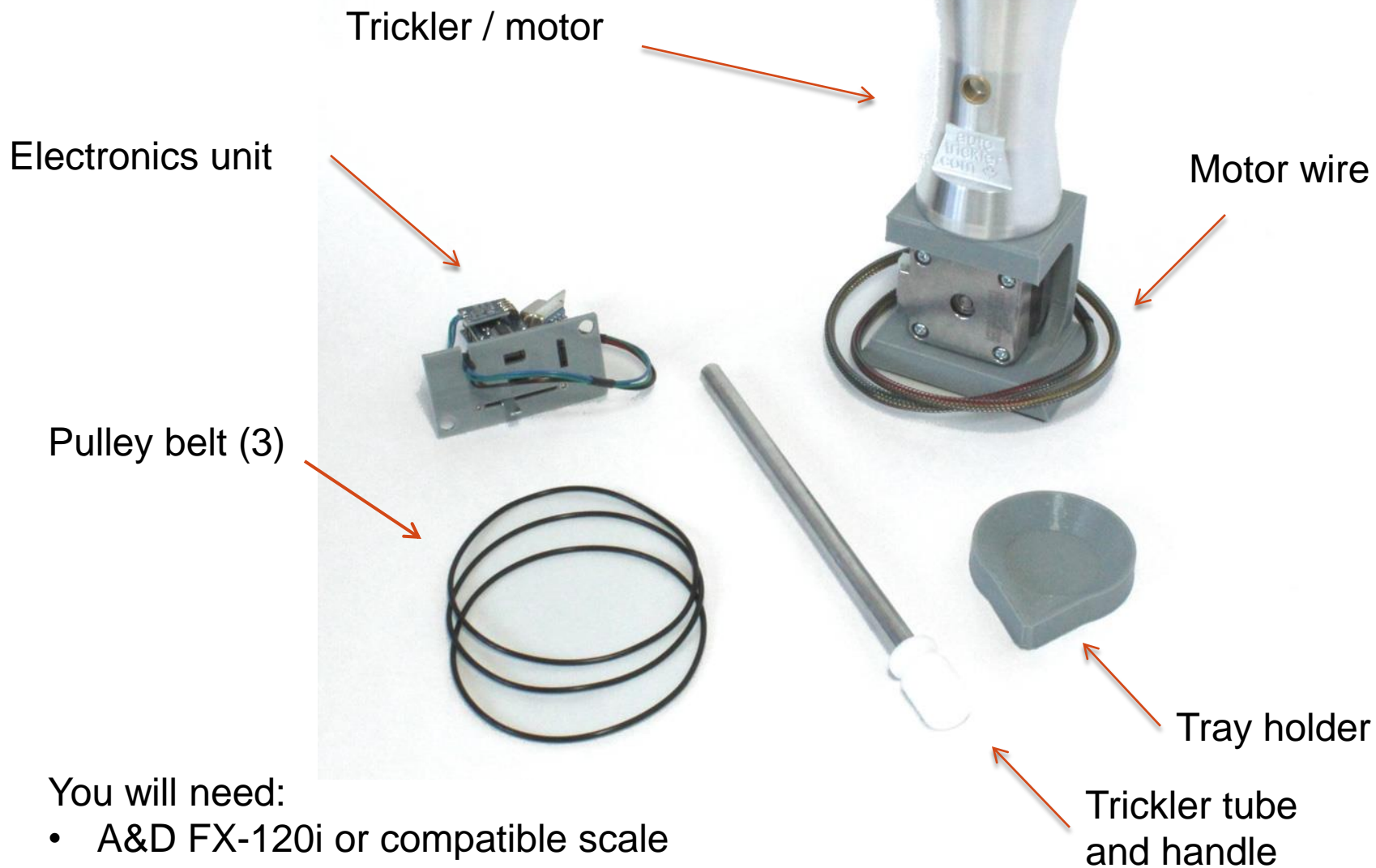
Instructions for setup and use

For A&D FX-120i/200i/300i

V2 - September 2016

For updated instructions and optimization guide, visit the website:
www.autotrickler.com

Parts



You will need:

- A&D FX-120i or compatible scale
- Powder tray
- Philips screwdriver

Assembly: trickler tube



The handle is already installed in your tube.

If necessary, it can be removed from the tube with a careful twisting and pulling motion.

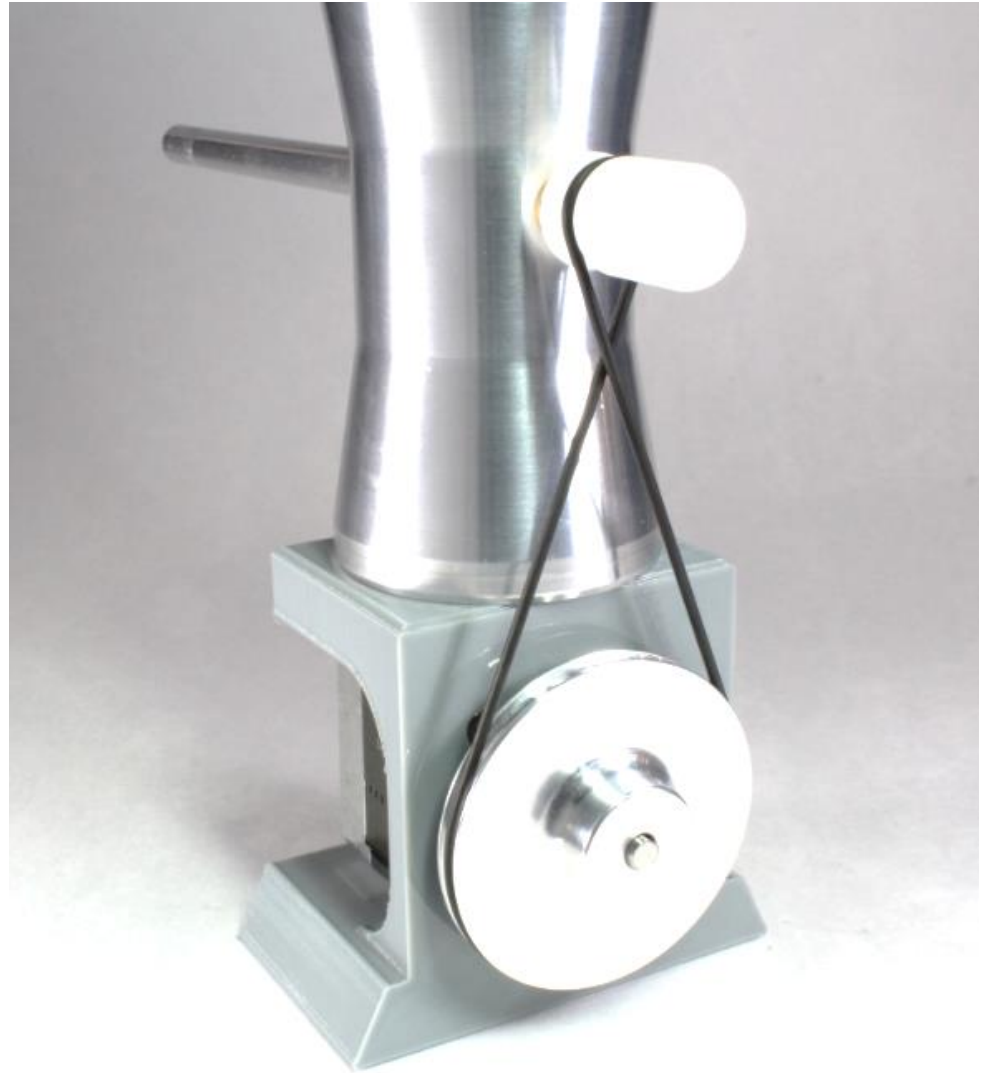
With the handle installed, insert the tube into the trickler.



Assembly: pulley belt

Connect the pulley belt with a twist, as shown.

The twist is important to ensure correct direction and tension.



Assembly: electronics



Remove power from the scale.

Remove the metal cover plate from the rear of the scale.



Insert the electronics and attach the connectors as shown.

The wire should not interfere with operation of the slider.

Finally, restore power to the scale.

The motor wire can be installed in either direction.

Assembly: final

Peel the backing tape and attach the tray holder to the scale platform.

Place it so that you can easily scoop powder into the tray while the trickler is in position.

The trickler tube should be level. Slightly tilting the trickler will increase or decrease the flow rate.

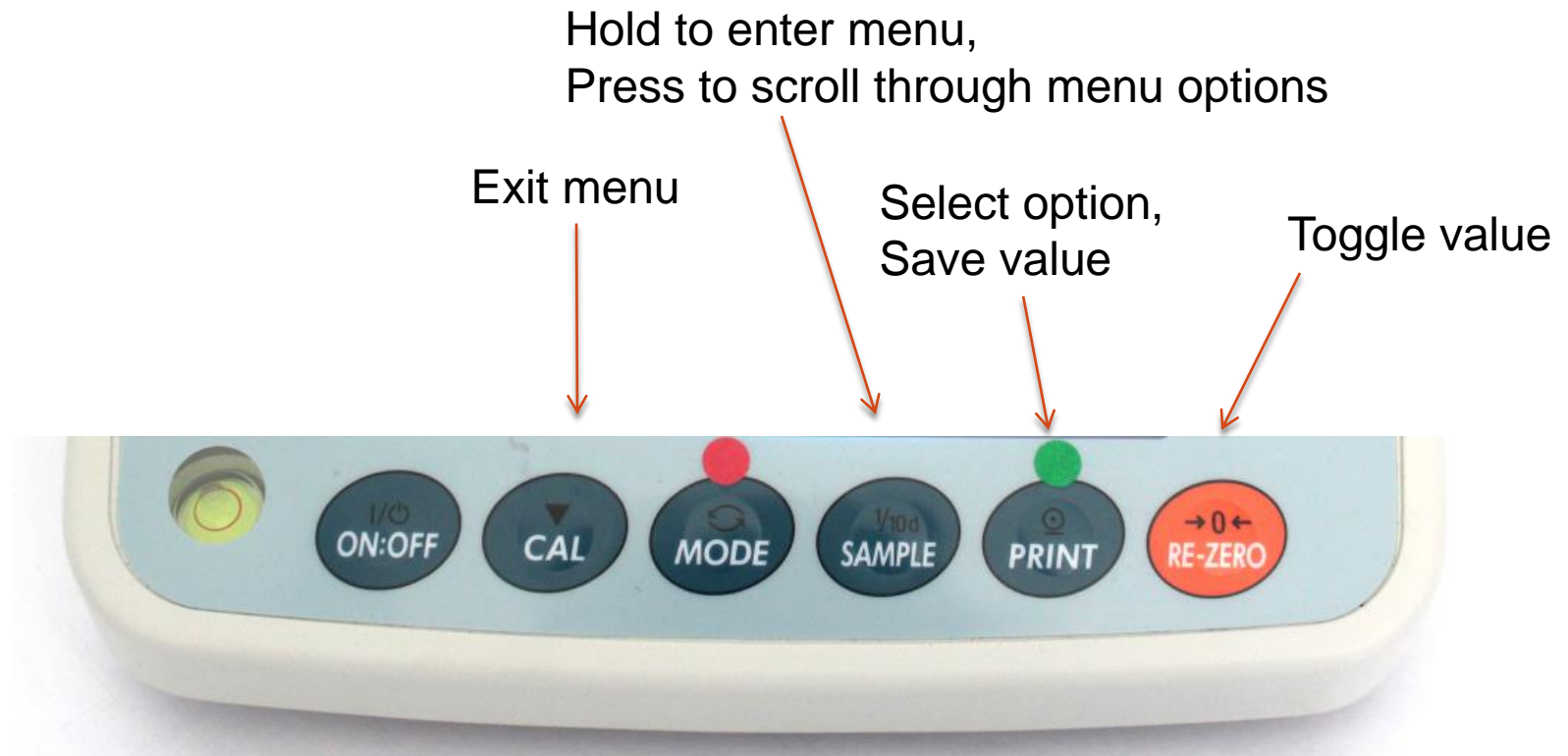


It is recommended to use the rear and side wind panels, and cover the top with a sheet of paper.

Ensure doors and windows are closed and the scale should easily be able to hold 1 milligram and trickle most efficiently.

Scale Configuration

To operate the trickler, a few scale settings need to be changed. The following few slides explain the process step-by-step.



Refer to your A&D FX-120i manual for further details.

Scale Configuration

bASFnC → **SPd** = 2

Set the refresh rate to 20 times per second.

- Press and hold SAMPLE to enter the menu.
- Press SAMPLE repeatedly until **bASFnC** is displayed.
- Press PRINT to select the setting.
- Press SAMPLE repeatedly until **SPd** is displayed.
- Press RE-ZERO repeatedly until **2** is displayed.
- Press PRINT to set the value.
- Press CAL to exit the menu.



Scale Configuration

dout → **Prt** = 5

Set the print key to wait for a stable reading.

- Press and hold SAMPLE to enter the menu.
- Press SAMPLE repeatedly until **dout** is displayed.
- Press PRINT to select the setting.
- Press SAMPLE repeatedly until **Prt** is displayed.
- Press RE-ZERO repeatedly until **5** is displayed.
- Press PRINT to set the value.
- Press CAL to exit the menu.



Scale Configuration

Sif → **bps** = 5

Set the serial port baud rate to 19200.

- Press and hold SAMPLE to enter the menu.
- Press SAMPLE repeatedly until **Sif** is displayed.
- Press PRINT to select the setting.
- Press SAMPLE repeatedly until **bps** is displayed.
- Press RE-ZERO repeatedly until **5** is displayed.
- Press PRINT to set the value.
- Press CAL to exit the menu.



Scale Configuration

Sif → **btPr** = **2**

Set the serial port mode to 8N1.

- Press and hold SAMPLE to enter the menu.
- Press SAMPLE repeatedly until **Sif** is displayed.
- Press PRINT to select the setting.
- Press SAMPLE repeatedly until **btPr** is displayed.
- Press RE-ZERO repeatedly until **2** is displayed.
- Press PRINT to set the value.
- Press CAL to exit the menu.



Scale Configuration

RESPONSE = FAST

- Press and hold MODE until **RESPONSE** is displayed.
- Press MODE repeatedly until **FAST** is displayed.
- Press PRINT to store the setting.
- Press CAL to exit the menu.



Scale Configuration

Set primary unit to **grains (GN)** and secondary unit to **grams (g)**

- Hold SAMPLE to enter menu
- Press SAMPLE repeatedly until 'Unit' is displayed
- Press PRINT to select 'Unit'
- Press SAMPLE repeatedly until 'GN' is displayed
- Press REZERO to enable 'GN'
 - The stabilization indicator will appear
- Press SAMPLE repeatedly until 'g' is displayed
- Press REZERO to enable 'g'
 - The stabilization indicator will appear
- Press PRINT to save
- Press CAL to exit menu



To check, turn the scale off and on and the unit should be **GN**.
Then press MODE repeatedly and it should switch between **GN** and **g**.

Operation: rate adjustments

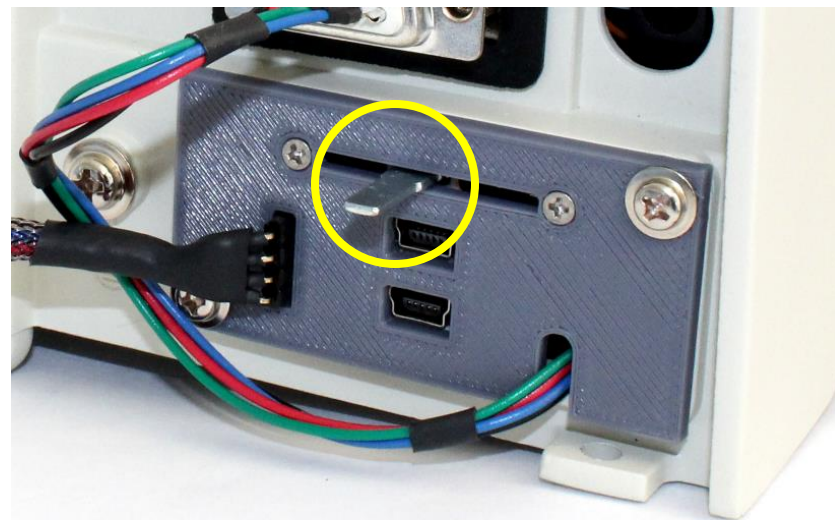
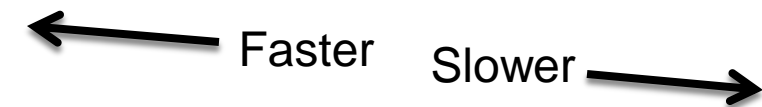
The flow rate is extremely sensitive to the tilt of the tube.

The trickler should dispense about 1 grain per second at full speed. Shim the base of the trickler mount to achieve this flow rate.

Adjust the slider to fine-tune for different powders.

Fine ball powders will require a faster setting, and heavy stick powders will require a slower setting.

This slider does not affect the maximum speed of the trickler. It only affects the ramp-down stage.



The trickler will be more consistent if the slider is near the middle. Adjust the tilt of the mount first, and use the slider for fine tuning.

Operation: starting

Start and stop dispensing using these buttons:

- PRINT = **Start** button
- MODE = **Stop** button

Apply a sticker or label to the scale for reference.



First place the empty pan and press the Re-Zero button.

To set a target weight and begin:

- Manually place a reference weight on the scale
- Press **Start**
- Replace the empty pan

Dispensing will start automatically from within 1 milligram of zero weight.

If the empty pan remains slightly above zero weight, and there is no fallen powder on the scale, it is possible there was a little extra powder in the pan at the start of the previous charge. Check the previous charge and re-zero the scale.

Operation: stopping

To pause temporarily:

Lift the pan to pause dispensing.

Dispensing will resume automatically from a partial weight that is:

- Greater than 0.1 grains
- At least 0.1 grains below the target

If the weight goes over the target, remove a small amount of powder and allow the dispenser to resume and finish automatically.

To stop until started again:

Press the **Stop** button at any time to stop automatically dispensing.

The dispenser will remember your target weight.

Replace the empty pan and press **Start** to resume with the previous target.

Or, place a new target weight manually and press **Start** to use a new target.

Operation: tips

WARNING: Ensure the tube is completely cleared of powder before switching to another powder.

The dispenser can operate in either grains or grams.

Grams provide slightly more resolution (0.001 grams ~ 0.015 grains).

Recommended practice:

- place your target weight in grains
- press **MODE** to switch the active unit to grams
- press **Start** to set target and operate in grams
- accept any weight within 0.001 grams

An advanced operation guide is available on the website:
www.autotrickler.com

Warnings / Warranty

ALWAYS VERIFY EACH CHARGE WEIGHT ON THE SCALE BEFORE LOADING POWDER INTO A CASE. This product is a tool for dispensing powder, not measuring. It does not prevent you from setting an unsafe target weight. It does not inform you that your charge is over the target or unsafe to fire. You are fully responsible for reading your scale and determining how much powder to put into your cases and into your firearm. Proper reloading practices must be used at all times. Do not use black powder or black powder substitutes. Black powder can be ignited by static discharge.

The Automatic Powder Trickler is warranted to be free from any defects in material or workmanship under normal use for the period of one (1) year from the shipping date. During the warranty period, any product or parts of the product that prove to be defective due to improper material or workmanship under normal use and maintenance will be repaired or replaced at no charge to the user. This warranty is extended only to the original purchaser and is non-transferrable. This product is intended for non-commercial use. Any other use of this product will void this warranty.

If a defect appears in the product, contact Adam MacDonald (adamjmac@gmail.com) to arrange repair/replacement.