

Kestrel[®] **Shooter's Weather Meter** with Applied Ballistics

APPLIED BALLISTICS PROFILE LOADER APPLICATION INSTRUCTIONS



NKhome.com

800.784.4221

Overview

The Applied Ballistics Profile Loader has been created to easily create profiles which contain both bullet and weapon information. Profiles may be created on a PC through the application or directly on the Kestrel and transferred via the software. Through this application, the entire Applied Ballistics Custom Drag Curve database as measured by Bryan Litz is available (*does not apply to the Kestrel Sportsman*). By using these drag curves instead of the G1 or G7 BC, greater accuracy can be achieved at farther distances.

Note: In order to connect to the device,

4500 Series: a Bluetooth connection or Kestrel Computer Interface device must be utilized.

*5700 Series: The USB cable **MUST** be used. This program does not work with Bluetooth. Please plug in USB cable to Kestrel and computer **first** before opening program.*

This tutorial does not cover installing the Bluetooth or the Kestrel Computer Interface. Instructions for both are located on the Nielsen-Kellerman Web Site.

Choosing the Correct Version of the Profile Loader (4500 Series Only)

In order to ensure compatibility between the Applied Ballistics Profile Loader and the Kestrel device, you must use the correct version of the profile loader. The Kestrel firmware version is shown as the device starts ("Iss. 4.xx") and the version of the profile loader can be determined by selecting the About menu option.

Kestrel Firmware Version	Applied Ballistics Profile Loader Version
4.76	Build 024
4.78 through 4.92	Build 033
4.93	Build 042 / Build 050

Choosing the Correct Version of the Profile Loader (5700 Series Only)

In order to ensure compatibility between the Applied Ballistics Profile Loader and the Kestrel device, you must use the correct version of the profile loader. The Kestrel firmware version is shown on the Kestrel by going to the Main Menu->About->Version->FW.

Kestrel Firmware Version	Applied Ballistics Profile Loader Version
1.01 through 1.12	Build 042
1.13 and above	Build 050

Migrating Profiles from an Older Version of the Profile Loader

Over time the Kestrel firmware goes through upgrades to the Applied Ballistics software. To migrate existing profiles from pre-existing versions of the profile loader, the following steps are recommended.

- 1) *If upgrading from version 4.76 only - Use Build 024 of the Profile Loader to connect to the Kestrel running version 4.76 of the firmware*

- 2) Download the Profiles from the Kestrel to the PC and ensure that they are listed in the **Profiles on PC** by using the **Copy to PC** button.
- 3) Navigate to the folder where the profile loader is located and create a copy of the **Profiles** folder on your desktop.

Name	Date modified	Type	Size
Device	10/22/2013 1:02 PM	File folder	
Files	10/22/2013 1:02 PM	File folder	
Profiles	10/22/2013 2:47 PM	File folder	
Launch AB Profile Loader	4/30/2013 12:00 PM	Shortcut	2 KB
- 4) Download Build 050 of the profile loader to your computer and extract to the desired location.
- 5) Navigate to the folder where the new profile loader is located.
- 6) Move the contents of the **Profiles** folder on your Desktop (Step 3) into the new profile loader folder. ***If going from older Builds, just copy the profiles over without uploading them first.***
- 7) Upgrade the Kestrel firmware per the instructions on the Nielsen Kellerman web site to version latest firmware.

The upgrade is now complete and Build 050 of the profile loader will work with the upgraded firmware.

To transfer from a 4500 to a 5700, please see this help document:

http://www.nkhome.com/pdfs/How_to_transfer_gun_profiles_from_4500_series_to_5000_series.pdf

Creating a New Profile and Selecting a Bullet from the Database

When the application is launched, a default profile is created. The default profile is referred to as UNSAVED to help remind users that the current profile is not saved and additionally, the **Profile Name (1)** label is turned red. The **Profile Name (1)** will always turn red when the user has made a change to the profile and the current changes are not yet saved.

To create a new profile and select a bullet from the database:

- Click the **New Profile (2)** button – Note that the **Profile Name** has turned red and the name is **UNSAVED**.
- Click the **Choose from Database (3)** button and a new dialog box will appear for selecting a bullet from the database.

Applied Ballistics - Profile Loader

File Help (1)

Profile Name: UNSAVED Save Profile Copy Profile **New Profile (2)** COM Port: COM44 Connect

B Bullet Properties [Choose from Database] **G** Gun Properties **I** Input Units

Bullet Diameter: 0.308 inches (3)
 Bullet Length: 1.240 inches
 Bullet Mass: 175 grains
 Ballistic Coeff.: 0.475 lb/in²
 Drag Curve: G1 G7

Zero Range: 100 meters
 Sight Height: 1.50 inches
 Zero Height: 0.00 inches
 Zero Offset: 0.00 inches
 Twist Rate: 10.00 inches
 Muzzle Velocity: 2600 fps

Drop Scale Factor Table		MV-Temp Table	
Mach	DSF	Temp	MV
0.00	1.000	0	0
0.00	1.000	0	0
0.00	1.000	0	0
0.00	1.000	0	0
0.00	1.000	0	0
0.00	1.000	0	0

I Input Units
 Mixed
 English
 Metric

O Output Units
 MILS
 MOA
 Clicks

P Profiles on PC
 Profiles on PC
 EXAMPLE-CC
 EXAMPLE-G1
 EXAMPLE-G7
 Delete Profile from PC

Get Profiles from Kestrel
 Copy to Kestrel
 Copy to PC
 Send Profiles to Kestrel

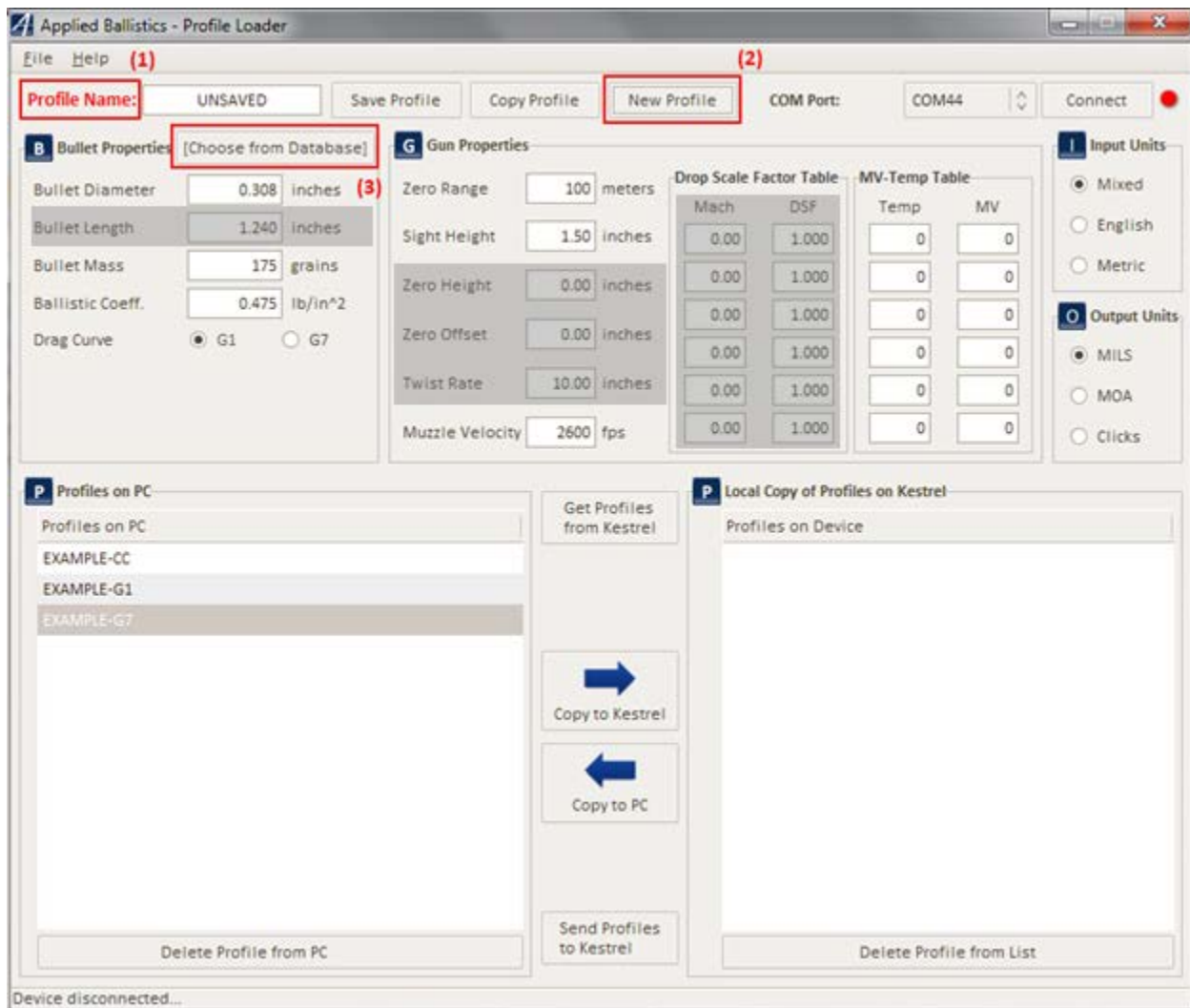
P Local Copy of Profiles on Kestrel
 Profiles on Device
 Delete Profile from List

Device disconnected...

Differences between the Applied Ballistics Kestrel and the Kestrel Sportsman

The Kestrel Sportsman is focused on high accuracy at the bullet's supersonic portion of the flight and optimized for minimal inputs required from the user. To create a profile, steps 1-3 are identical to the Applied Ballistics Kestrel.

The grayed out items in the figure below show the inputs that will not be used by the Kestrel Sportsman. Any values entered into these boxes will be ignored. Additionally, custom drag curves are not supported by the Kestrel Sportsman. If a custom curve is selected from the profile loader, a default value of 1.0 will set for the ballistic coefficient. G1 and G7 ballistic coefficients from the bullet database are fully available for the Kestrel Sportsman.

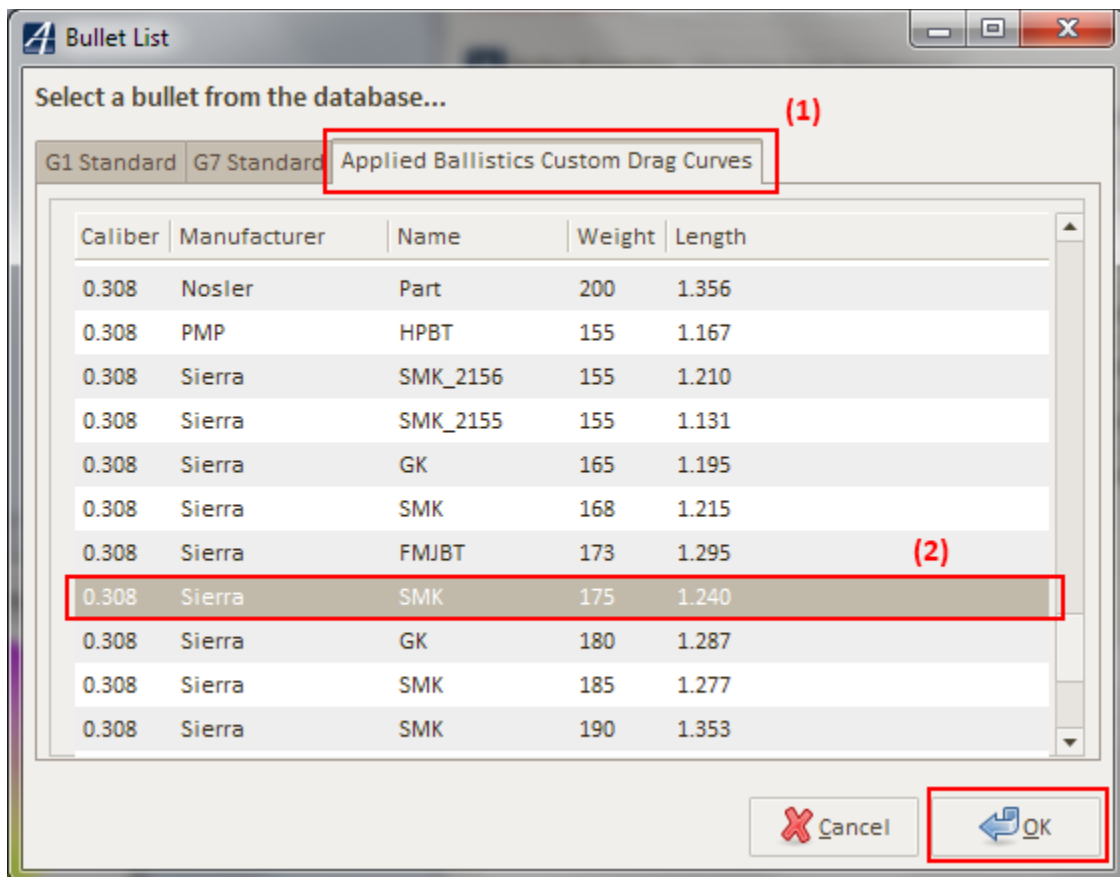


Selecting a Custom Drag Curve from the Applied Ballistics Library

The Applied Ballistics bullet database contains the ballistic Coefficients (BC) as measured by Bryan Litz for several bullets. However, to gain accuracy at extreme ranges, utilizing one of the **Applied Ballistics Custom Drag Curves (1)** is recommended.

To access a bullet from the database:

- Select either the **G1 Standard**, **G7 Standard**, or **Applied Ballistics Custom Drag Curves (1)** tab from the bullet database window.
- Select the bullet from the database by double clicking it or selecting it and clicking the OK button. In this case, we've selected the **175 grain 0.308" SMK (2)** custom drag curve.

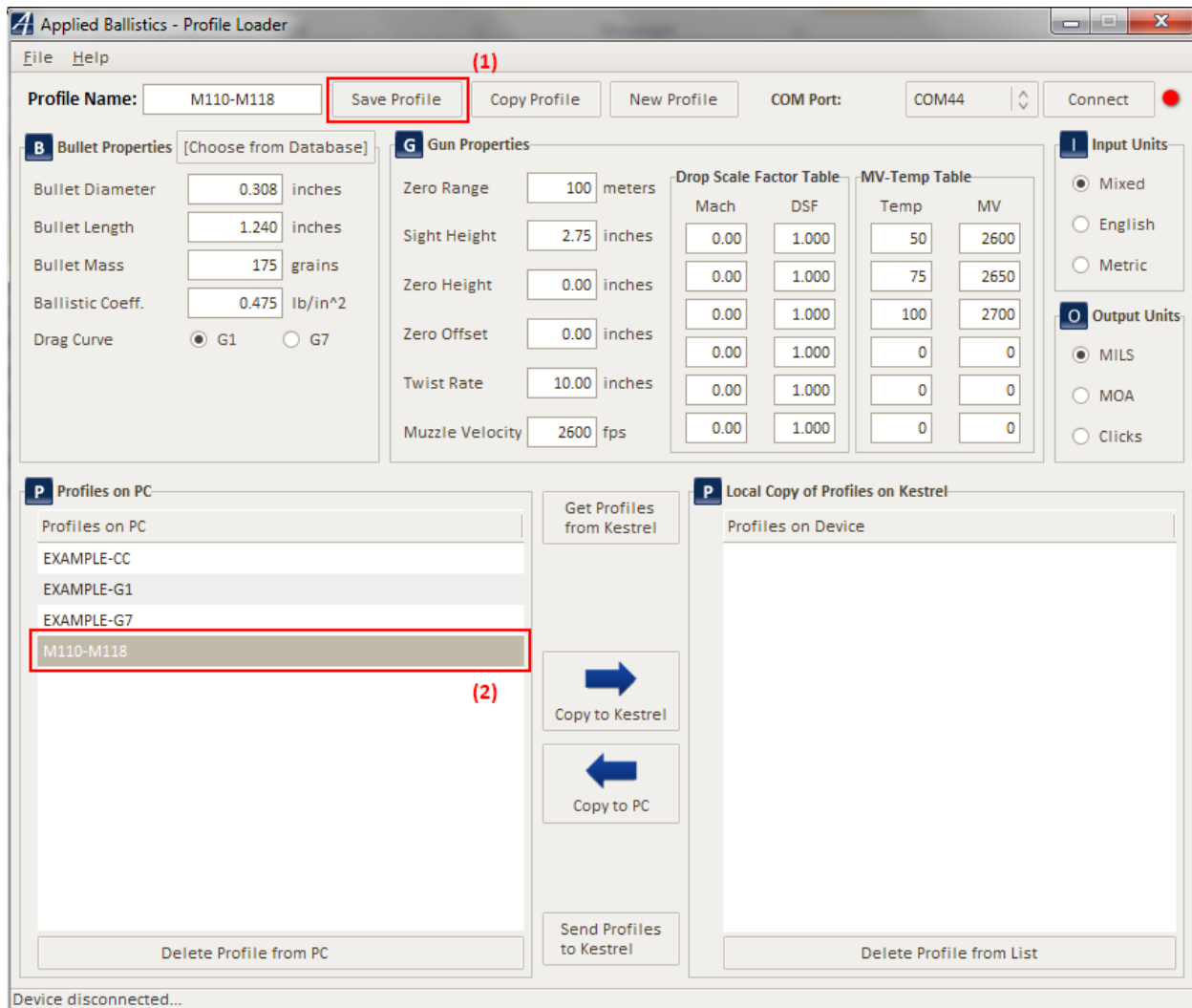
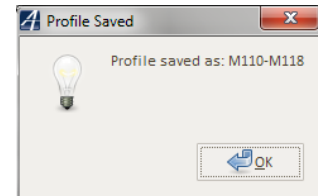


Saving a Profile

Once the bullet has been selected from the database, the **Bullet Properties** will populate automatically. Alternatively, the bullet properties may be entered manually. The user is responsible for entering the **Gun Properties** as each weapon will be unique.

To save a profile:

- Provide **Profile Name** that is 10 characters or less that you will remember and be easily able to recall on the Kestrel Shooter's Weather Meter.
- Click the **Save Profile (1)** button and the dialog box to the right will confirm that the profile is saved.
- The newly saved profile will be listed in the **Profiles on PC (2)**.

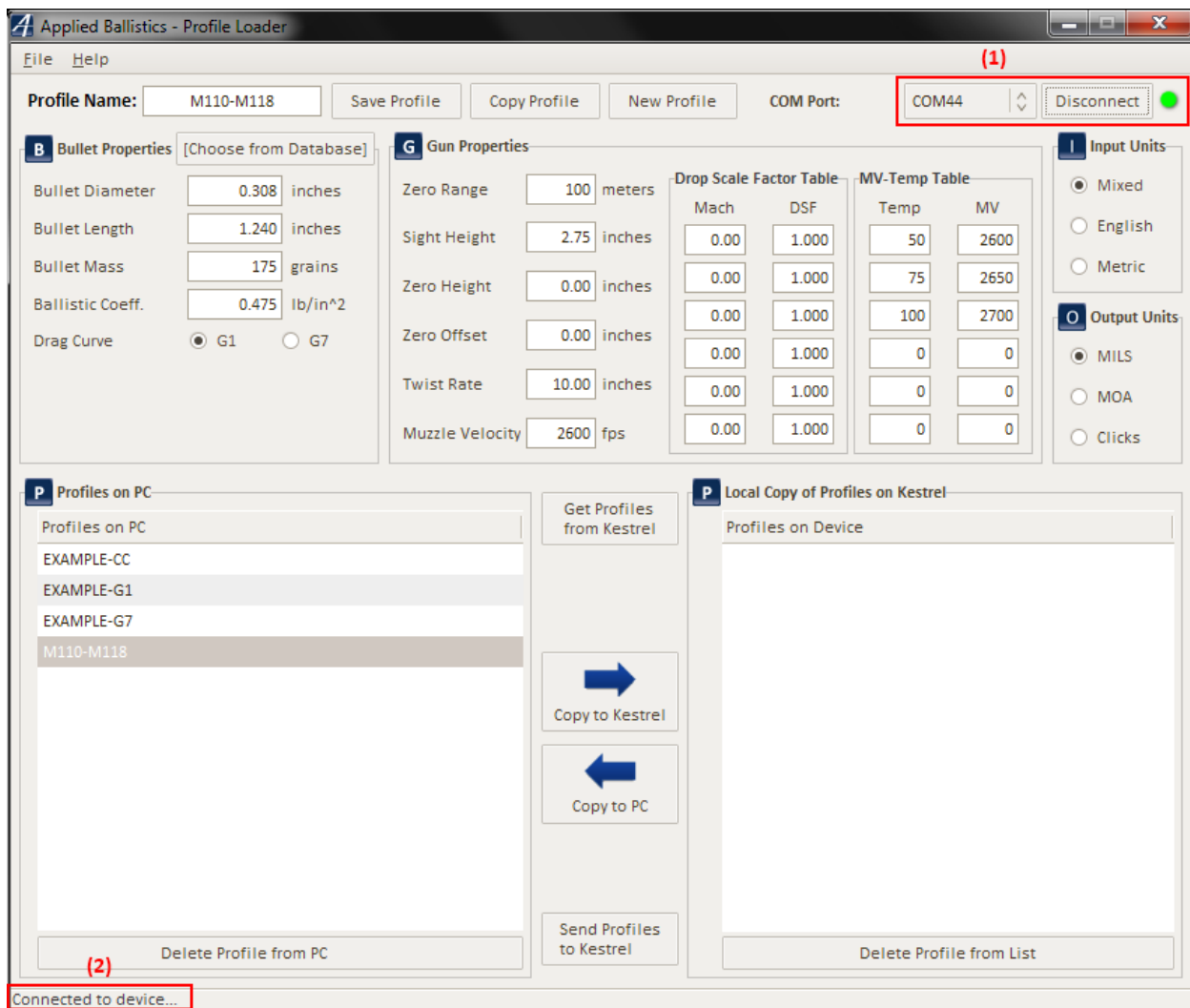


Connecting to the Kestrel Shooter's Weather Meter

To transfer profiles between the Kestrel Shooter's Weather Meter and the PC a Bluetooth connection or the Kestrel Computer Interface must be utilized. The Applied Ballistics Profile Loader utilizes the COM port created by pairing the Bluetooth device or by the installation of the Kestrel Computer Interface. Once the device has been paired or the drivers installed, launch the application (consult user manual and Nielsen-Kellerman web site). Otherwise, the application will not detect the newly created port.

To connect to the Kestrel Shooter's Weather Meter:

- Select an existing COM port from the drop down list and press the **Connect (1)** button. (Not necessary for the 5700 series units)
- The application indicates if it was able to connect to the Kestrel Shooter's weather meter in the status bar by showing that it is **Connected to device... (2)**.

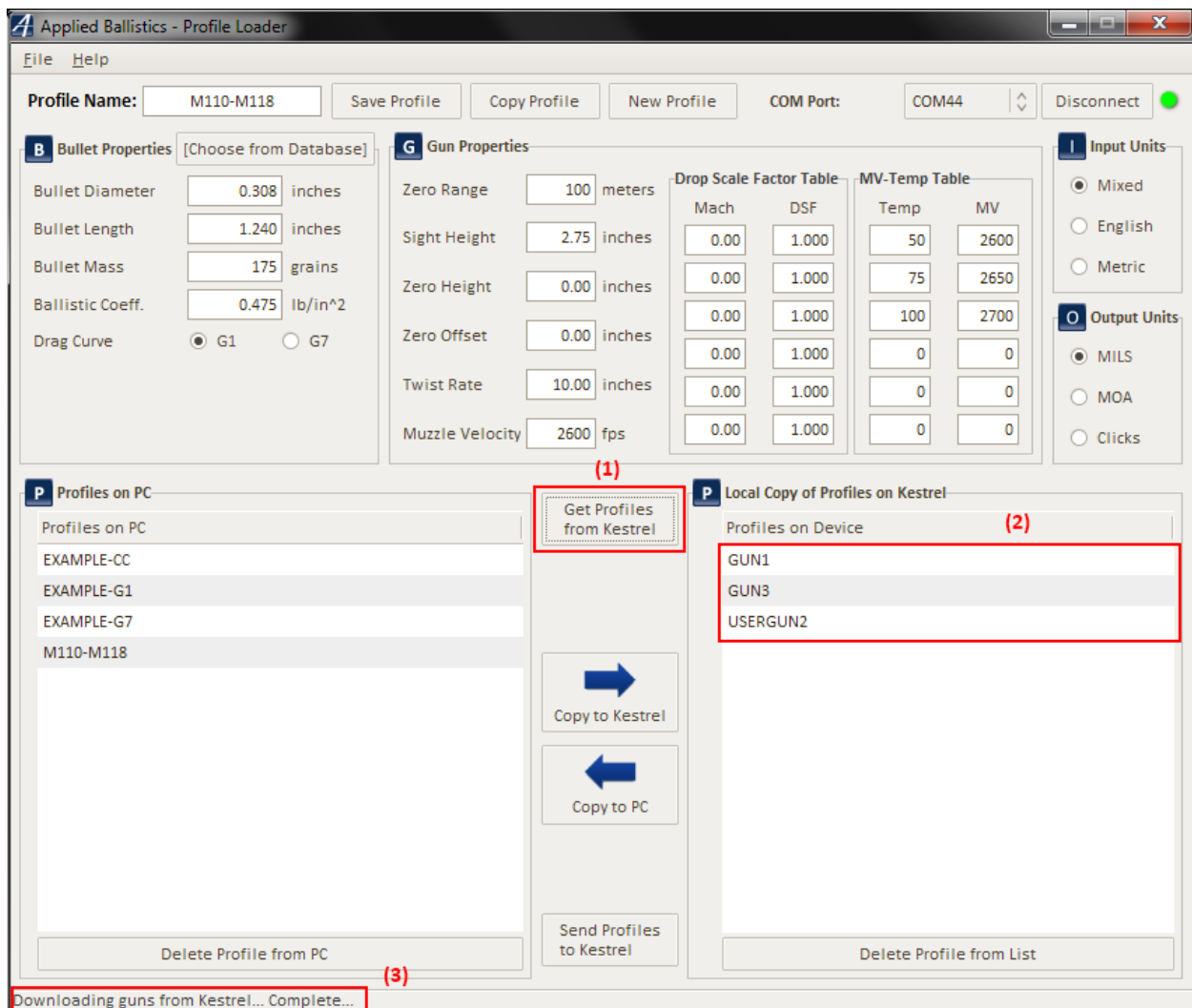


Downloading Profiles from the Kestrel Shooter's Weather Meter

Several profiles may already exist on the Kestrel Shooter's Weather Meter and should be transferred to the PC for storage and backup.

To download profiles from the Kestrel to the PC:

- Click on the **Get Profiles from Kestrel (1)** button.
- A dialog box will appear with the progress of the transfer from the Kestrel to the PC.
- Once the transfer is complete, all downloaded profiles will appear in the listing under **Local Copy of Profiles on Kestrel (2)**. Keep in mind that you are only editing a local copy of the profile listing within the application and not yet editing the profiles directly on the Kestrel. This occurs at a later step in the process.
- The status bar indicates the current status of the download and if all profiles have been transferred **(3)**.

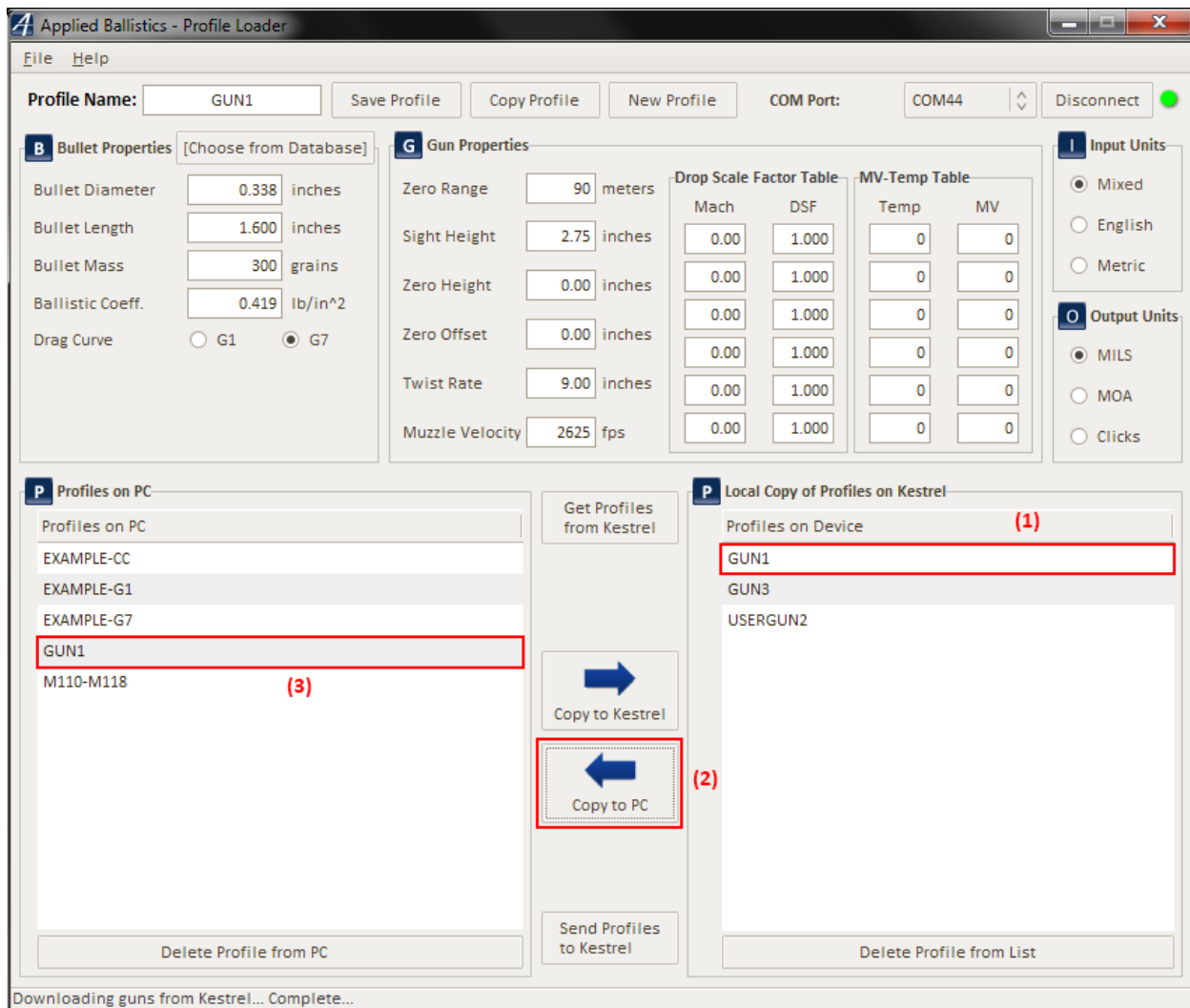


Copying Profiles from the Kestrel Shooter's Weather Meter to the PC

Once profiles have been downloaded from the Kestrel Shooter's Weather Meter to the PC, they may be copied for local storage on the PC.

To copy a profile from the Kestrel to the PC:

- Select the profile of interest from the **Profiles on Kestrel (1)** listing.
- The bullet and gun properties shown in the application will indicate that the new profile is selected.
- Click the **Copy to PC (2)** button.
- The profile will now be shown in the **Profiles on PC listing (3)**.



The screenshot shows the 'Applied Ballistics - Profile Loader' application window. The interface includes a menu bar (File, Help), a profile name field (GUN1), and buttons for 'Save Profile', 'Copy Profile', and 'New Profile'. The 'COM Port' is set to COM44, and there is a 'Disconnect' button. The main area is divided into several sections:

- Bullet Properties:** Fields for Bullet Diameter (0.338 inches), Bullet Length (1.600 inches), Bullet Mass (300 grains), Ballistic Coeff. (0.419 lb/in²), and Drag Curve (G1, G7).
- Gun Properties:** Fields for Zero Range (90 meters), Sight Height (2.75 inches), Zero Height (0.00 inches), Zero Offset (0.00 inches), Twist Rate (9.00 inches), and Muzzle Velocity (2625 fps).
- Drop Scale Factor Table:** A table with columns for Mach and DSF, with values ranging from 0.00 to 1.000.
- MV-Temp Table:** A table with columns for Temp and MV, with values ranging from 0 to 0.
- Input Units:** Radio buttons for Mixed, English, and Metric.
- Output Units:** Radio buttons for MILS, MOA, and Clicks.
- Profiles on PC:** A list of profiles including EXAMPLE-CC, EXAMPLE-G1, EXAMPLE-G7, GUN1 (highlighted with a red box and labeled (3)), and M110-M118.
- Local Copy of Profiles on Kestrel:** A list of profiles including GUN1 (highlighted with a red box and labeled (1)), GUN3, and USERGUN2.
- Buttons:** 'Get Profiles from Kestrel', 'Copy to Kestrel', 'Copy to PC' (highlighted with a red box and labeled (2)), and 'Send Profiles to Kestrel'.
- Footer:** 'Delete Profile from PC' and 'Delete Profile from List' buttons.

At the bottom of the window, a status bar indicates 'Downloading guns from Kestrel... Complete...'.

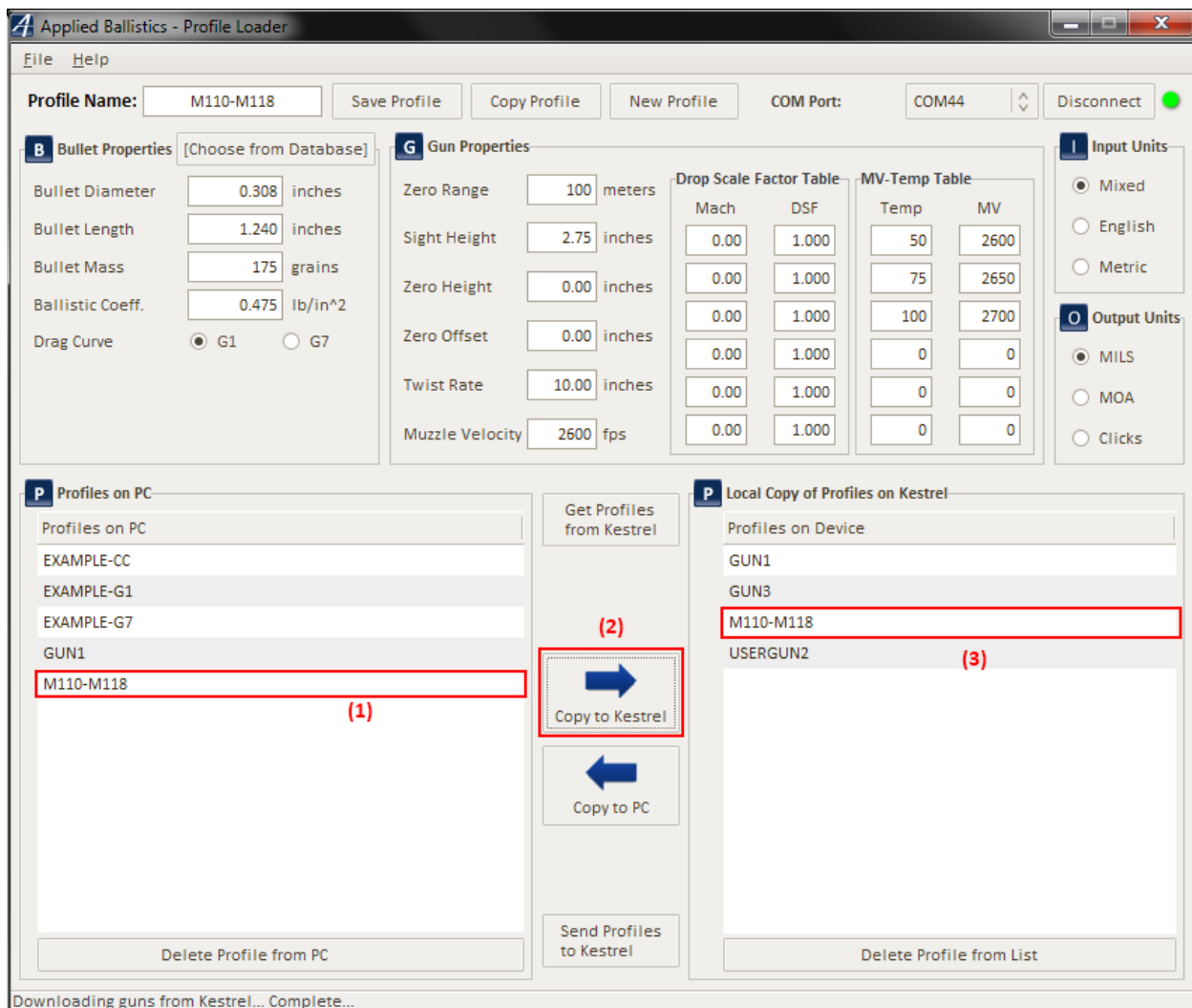
Copying Profiles from the PC to the Kestrel Shooter's Weather Meter

Similar to how profiles are copied from the Kestrel to the PC, up to 16 profiles may be copied onto the Kestrel Shooter's Weather Meter.

To copy a profile from the PC to the Kestrel:

- Select the profile of interest from the **Profiles on PC (1)** listing.
- The bullet and gun properties shown in the application will indicate that the new profile is selected.
- Click the **Copy to Kestrel (2)** button.
- The profile will now be shown in the **Local Copy of Profiles on Kestrel listing (3)**.

Note: The profiles have not yet been uploaded and the copy of the profile is only a working copy within the PC application until the profiles are uploaded.



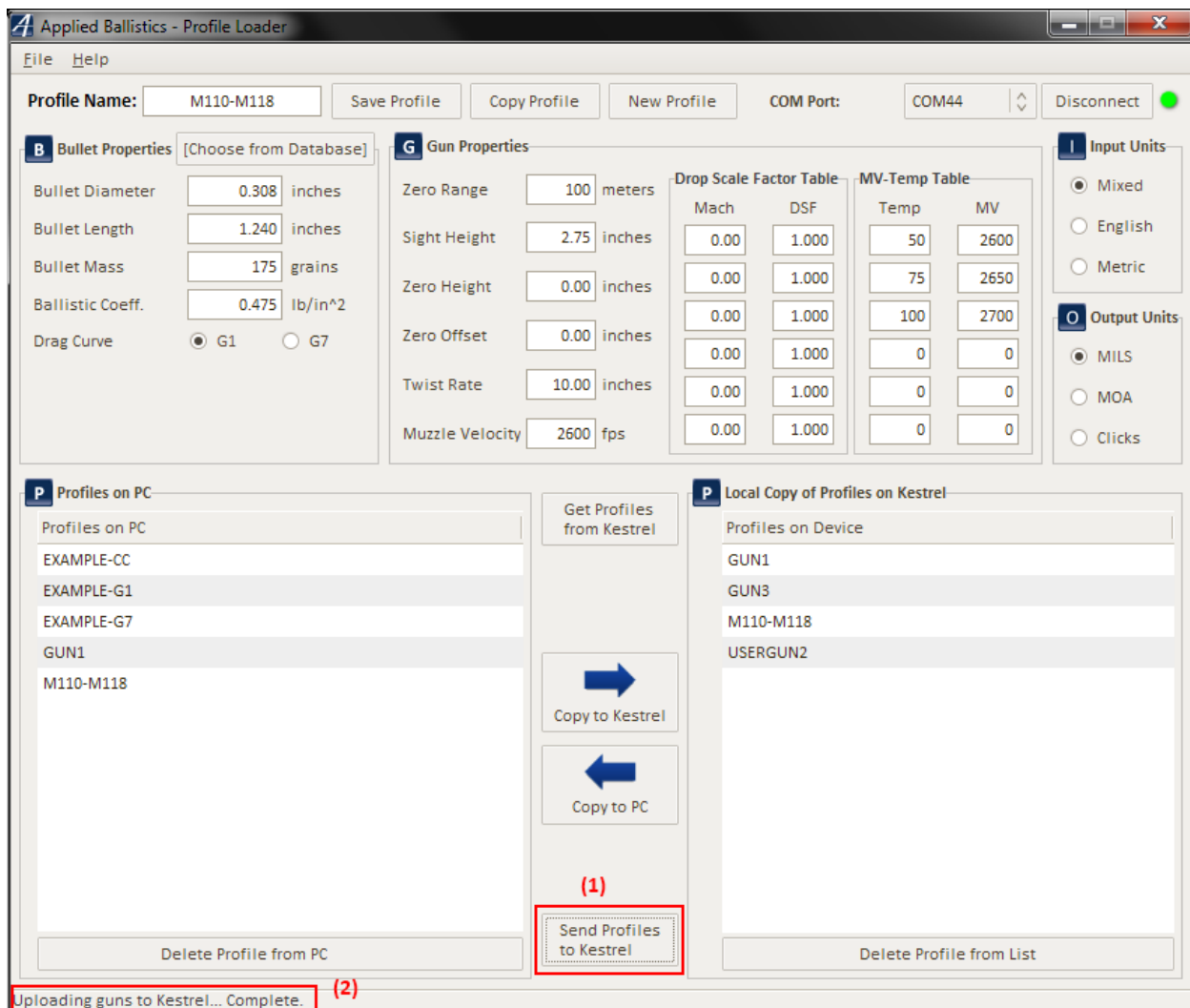
The screenshot shows the 'Applied Ballistics - Profile Loader' application window. At the top, the 'Profile Name' is set to 'M110-M118'. Below this are sections for 'Bullet Properties' and 'Gun Properties'. The 'Profiles on PC' list on the left contains several profiles, with 'M110-M118' highlighted and labeled with a red box and the number (1). In the center, the 'Copy to Kestrel' button is highlighted with a red box and labeled with a red arrow and the number (2). On the right, the 'Local Copy of Profiles on Kestrel' list contains several profiles, with 'M110-M118' highlighted and labeled with a red box and the number (3). The status bar at the bottom indicates 'Downloading guns from Kestrel... Complete...'.

Uploading Profiles to the Kestrel Shooter's Weather Meter

Once the profiles have been copied within the application from the PC to the Kestrel Shooter's Weather Meter, it is necessary to upload all of the profiles to the device to store them. When the upload begins, all current profiles on the device are erased and replaced with those selected within the application.

To upload profiles from the PC to the device:

- Click on the **Send Profiles to Kestrel (1)** button.
- A dialog box will appear with the progress of the transfer from the PC to the Kestrel.
- Once the transfer is complete, the application will indicate in the status bar that all profiles have been uploaded to the device **(2)** and the operation is complete.

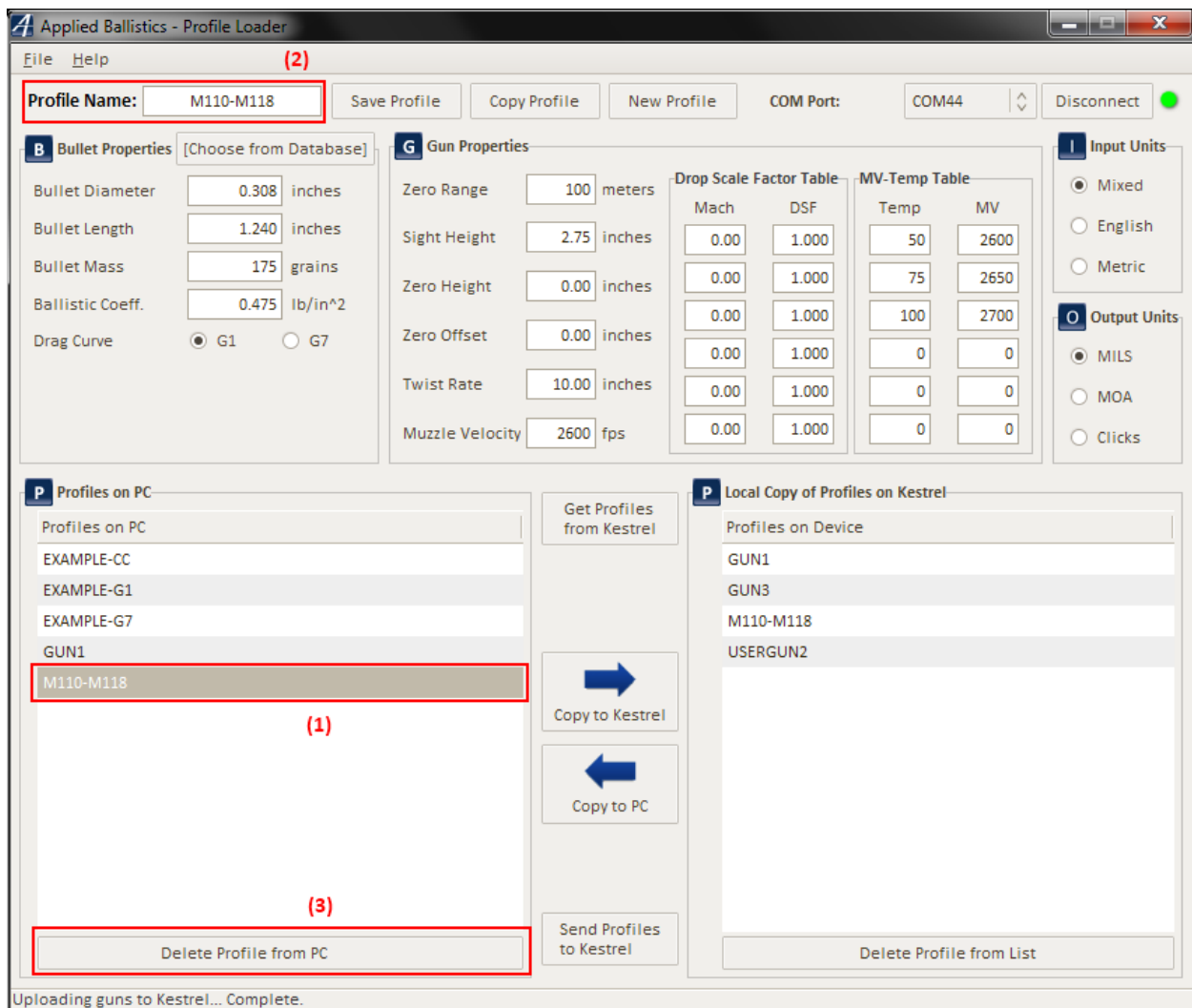


Deleting Profiles from the PC and Kestrel Shooter's Weather Meter

At any time, profiles may be deleted from the PC or Kestrel.

To delete a profile:

- Select the profile from either the PC or Kestrel listing **(1)**.
- Ensure that the profile of interest is shown in the **Profile Name (2)**.
- Click on the **Delete from PC** or **Delete from List Button (3)**.
- A confirmation dialog box will appear that will ask to confirm that the profile should be deleted. Click **OK** to delete the profile or **Cancel** to cancel the operation.



The screenshot shows the 'Applied Ballistics - Profile Loader' application window. At the top, the 'Profile Name' field is highlighted with a red box and labeled **(2)**, containing the text 'M110-M118'. Below this, the interface is divided into several sections:

- Bullet Properties:** Fields for Bullet Diameter (0.308 inches), Bullet Length (1.240 inches), Bullet Mass (175 grains), Ballistic Coeff. (0.475 lb/in²), and Drag Curve (G1 selected).
- Gun Properties:** Fields for Zero Range (100 meters), Sight Height (2.75 inches), Zero Height (0.00 inches), Zero Offset (0.00 inches), Twist Rate (10.00 inches), and Muzzle Velocity (2600 fps).
- Drop Scale Factor Table:** A table with columns for Mach and DSF, showing values of 0.00 and 1.000 for each.
- MV-Temp Table:** A table with columns for Temp and MV, showing values of 50, 75, 100, 0, and 0 for Temp, and 2600, 2650, 2700, 0, and 0 for MV.
- Input Units:** Radio buttons for Mixed (selected), English, and Metric.
- Output Units:** Radio buttons for MILS (selected), MOA, and Clicks.
- Profiles on PC:** A list of profiles including EXAMPLE-CC, EXAMPLE-G1, EXAMPLE-G7, GUN1, and M110-M118. The 'M110-M118' entry is highlighted with a red box and labeled **(1)**.
- Local Copy of Profiles on Kestrel:** A list of profiles on the device including GUN1, GUN3, M110-M118, and USERGUN2.
- Buttons:** 'Get Profiles from Kestrel', 'Copy to Kestrel' (with a right arrow), 'Copy to PC' (with a left arrow), 'Send Profiles to Kestrel', 'Delete Profile from PC' (highlighted with a red box and labeled **(3)**), and 'Delete Profile from List'.

At the bottom of the window, a status bar reads 'Uploading guns to Kestrel... Complete.'