BACKWARD PRODUCTION

# BW ONE

## MS TOOLS

**VERSION 2.0.0**




User manual · VST3 · AAX · Windows 64-bit

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# 1. Introduction

BW One MS Tools is a stereo monitoring and correction tool: input and output level strips with true peak, a phase scope (goniometer) with correlation bar, trim and polarity per channel, a mid/side matrix, a mono maker, an enlarger and a loudness meter. It uses the same interface platform as BW Four Tilt EQ.

This manual describes **version 2.0.0**, a major update: new interface in the BW Four style, ITU-R BS.1770-4 true peak, resizable window, OpenGL rendering, Mid / Side gain of -12 / +12 dB, a complete preset menu (Save as, Rename, Delete, Open presets folder, Init) with confirmation cards, an About card with the instance, the sample rate and an error-log export, and a Settings window with a 12-section help page. Projects made with earlier BW One versions still load.

# 2. Installation

Run **BW_One_MS_Tools_2.0.0_Setup.exe** (administrator rights required) and choose VST3, AAX or both. Or copy the files by hand:

VST3: `C:\Program Files\Common Files\VST3\BackWard\BW One MS Tools.vst3`
AAX: `C:\Program Files\Common Files\Avid\Audio\Plug-Ins\BW One MS Tools.aaxplugin`

Rescan the plug-ins in your host. Click the BackWard logo in the plug-in: the About card must show **Version 2.0.0**. Close the host before replacing an installed copy, otherwise the file is locked.

> **AAX.** The AAX build is not signed. A commercial Pro Tools needs a PACE / iLok signature; a development Pro Tools loads it as is.

System requirements: Windows 10 or 11 (64-bit), a VST3 or AAX host, a graphics driver with OpenGL support (recommended).

# 3. Quick start

1. Insert BW One MS Tools on a track or the stereo bus.
2. Watch the IN and OUT strips (RMS and true peak) and the phase scope.
3. Use the monitor buttons under the scope (L, M, L/R, S, R) to listen to one part of the image.
4. Correct level and polarity with Trim L / R and Inv Ph.
5. Use the M/S matrix, Mono Maker or Enlarger to correct the width, then read the loudness card.

## 4. The interface at a glance




| | |
|---|---|
| **Top rail** | Bypass (round button, top left) and the gear (top right) that opens OPTIONS \| HELP. |
| **IN / OUT strips** | Stereo level strips on each side: RMS bar, true-peak hold tick, values in dB and dBTP. |
| **Phase scope** | Goniometer in the centre with the correlation bar above it and the monitor buttons below. |
| **TRIM L / R** | Large knobs on each side, with LINK and the polarity switches Inv Ph L / R. |
| **M/S MATRIX** | Bottom left: mode switch, Mid / Width / Side gain, pans, mute, flip and channel swap. |
| **STEREO TOOLS** | Bottom centre: Mono Maker, Mono Below, Enlarger, RESET. |
| **LOUDNESS** | Bottom right: momentary, short term, long term, range and analysis time. |
| **Footer** | Preset bar (arrows, name, Save, A / B) and the BackWard logo with the plug-in name. |

## 5. Signal path

Input → **IN strip** (measured before any setting) → M/S matrix → Trim / Polarity → Mono Maker / Enlarger → Monitor (L, R, M, S, swap) → **OUT strip**, phase scope, correlation and loudness (all measured after every setting).

**Bypass** takes the plug-in out of the signal path without a click; the meters keep running. With the M/S matrix OFF the signal passes bit-exact.

## 6. Level strips IN / OUT

- The bar shows the RMS level; the white tick is the true-peak hold; the top numbers are RMS in dB; the bottom numbers are the maximum true peak in dBTP.
- True peak follows **ITU-R BS.1770-4** (oversampled detector). Values above the TP limit turn red.
- Click a strip to reset its holds. Peak Hold, Peak Release, RMS Release and TP Limit are set in OPTIONS.

## 7. Phase scope and correlation

The goniometer shows the stereo image after all settings. Its display level adapts automatically, so it shows the *shape* of the image, not its absolute level. The correlation bar goes from -1 (out of phase) to +1 (mono).

| | |
|---|---|
| **L / R** | Normal stereo listening. Click again to swap the channels. |
| **L, R** | Solo left or right. |
| **M, S** | Solo mid or side. |

## 8. Trim and polarity

TRIM L / TRIM R: ±12 dB per channel. Double-click or Alt-click returns to 0 dB. **LINK** moves both trims together and keeps their difference. **Inv Ph L / R** inverts the polarity of a channel.

## 9. M/S matrix

| | |
|---|---|
| **OFF** | Bit-exact pass-through. |
| **DECODE** | Input 1 = Mid, input 2 = Side, converted to L/R. |
| **ENCODE** | L/R converted to Mid / Side. |
| **INLINE** | L/R → M/S → settings → L/R. |

In DECODE and INLINE: **MID GAIN** and **SIDE GAIN** (-12 / +12 dB), **WIDTH** (0 to 200 %), **MID PAN** and **SIDE PAN**, **MUTE M**, **MUTE S**, **FLIP 180** (mid polarity) and **CH SWAP** (swaps the two input channels). The controls are dimmed in OFF mode. **RESET** returns the tools to neutral.

## 10. Stereo tools

| | |
|---|---|
| **MONO MAKER** | 0 to 100 % mono (100 % = full mono). |
| **MONO BELOW** | Keeps everything under the chosen frequency (20 to 500 Hz) in mono. Off below 20 Hz. |
| **ENLARGER** | 0 to 100 % wider (side up to ×2, +6 dB). |

## 11. Loudness

Momentary, short term and long term in LUFS, range in LU, and analysis time. The colours follow the target and the LRA warning set in OPTIONS. RESET restarts the measurement.

## 12. Presets and A/B

Bottom bar: the arrows step through the presets, the name opens the list, **Save** writes over your own preset (a factory preset or Init asks for a name first), **A / B** keep two complete settings. A star after the name means the preset was modified. Short messages ("Saved", "Renamed", "Deleted") appear in the name field.

| | |
|---|---|
| **FACTORY** | The built-in presets: Mono Check, Enlarge +25, Bass Mono 120, M/S Decode, M/S Encode, Mid Up 3 dB, Side Up 3 dB. |
| **MY PRESETS** | Your own presets, in alphabetical order. |
| **Save as...** | Type a name in the name field, then press Enter (Esc cancels). If the name exists, a card asks before overwriting. |
| **Rename, Delete** | For your own presets. Delete asks for confirmation. |
| **Open presets folder** | Opens `Documents\BackWard\BW One MS Tools\Presets`, one small file per preset. |
| **Init** | Back to the neutral settings (asks for confirmation). |

Loading any preset first returns every parameter to its default value, then applies the preset: a preset never inherits anything from the previous sound. Bypass and the trim link are not part of a preset.

## 13. Options and Help

The gear opens one movable window with two tabs, OPTIONS and HELP. Click a pill to choose a value. These settings only change what you see and measure, never the sound.

| | |
|---|---|
| **Meter style** | Modern, VU, BBC PPM, DIN PPM, Nordic PPM. |
| **Display rate** | 30 or 60 fps. |
| **Peak hold** | Off, or the time the peak mark stays: 100 ms, 350 ms, 700 ms, 1.5 s. |
| **RMS release** | How fast the RMS bar falls: 4, 8, 16 or 32 dB/s. |
| **Scope persistence, sensitivity, style** | Short / Medium / Long, Low / Normal / High, Musical / Classic. |
| **Target LUFS** | -23, -18, -16, -14, -12, -10, -9, -8, -7, -6. |
| **TP limit** | -1.0, -0.1 or 0.0 dBTP: true peak above it turns red. |
| **LRA warning** | Colours the range when it is too wide. |
| **Window size** | 75 / 100 / 125 / 150 %. |
| **Rendering** | Normal or OpenGL. |
| **Restore defaults** | Returns the metering, scope and loudness settings to their factory values. |
| **HELP** | The short guide: 12 sections on two columns. |

The About card (click the BackWard logo) shows the version, the instance (the track name, or INSTANCE 01) and the sample rate. **Export error log** saves a text file you can send to BackWard Production if something fails.

## 14. Window size and OpenGL

The window is resizable by its bottom-right corner (fixed ratio); the size presets in OPTIONS do the same in one click and are remembered. OpenGL rendering follows the same policy as BW Four: it is only active while the editor is on screen, a limited number of editors share it, and it switches itself off if the host crashed while it was starting (turn it back on in OPTIONS).

## 15. Tips and shortcuts

- Double-click or Alt-click a knob to reset it. Ctrl+click also resets.
- Click an IN / OUT strip to reset its peak holds; click RESET in LOUDNESS to restart the measurement.
- Use LINK to keep a trim difference while moving both channels.
- Use A / B to compare two complete settings.

- To check mono compatibility, push Mono Maker to 100 % and watch the correlation bar and the OUT strips.

## 16. Technical specifications

| | |
|---|---|
| **Formats** | VST3 and AAX, 64-bit Windows, stereo in / stereo out |
| **Sample rates** | Any. True peak oversampling: 8× below 96 kHz, 4× below 192 kHz, 2× above |
| **Trim** | ±12 dB per channel |
| **Mid / Side gain** | -12 / +12 dB |
| **Bundle id** | `com.BackWardProduction.BWONE` |

## 17. Parameter list (automation)

| Parameter | Range | Default |
|---|---|---|
| **Trim L, Trim R** | -12 to +12 dB | 0 dB |
| **Trim Link** | Off, On | Off |
| **Inv Ph L, Inv Ph R** | Off, On | Off |
| **Monitor** | L/R, L, R, M, S | L/R |
| **Bypass** | Off, On | Off |
| **M/S Mode** | Off, Decode, Encode, Inline | Off |
| **M/S Mid Gain, M/S Side Gain** | -12 to +12 dB | 0 dB |
| **M/S Width** | 0 to 200 % | 100 % |
| **M/S Mid Pan, M/S Side Pan** | Left to right | Centre |
| **M/S Mute Mid, Mute Side, Flip 180, Ch Swap** | Off, On | Off |
| **Mono Maker** | 0 to 100 % | 0 % |
| **Bass Mono (Mono Below)** | Off, 20 to 500 Hz | Off |
| **Stereo Enlarger** | 0 to 100 % | 0 % |

## 18. Troubleshooting

| | |
|---|---|
| **Old version shown** | Close the host, replace the file, rescan the plug-ins. The About card gives the installed version. |
| **Window looks flat or slow** | Check OpenGL in OPTIONS; it may have been switched off after a host crash. |
| **Goniometer does not change with level** | By design: its gain adapts to show the shape of the image. |
| **AAX not loaded** | Commercial Pro Tools needs a signed AAX. |
| **A preset cannot be saved or deleted** | Open the About card, click Export error log and send the file to BackWard Production with a short description. |

## 19. Version history

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|---|---|
| **2.0.0** | Major update: BW Four look, IN / OUT strips with ITU-R BS.1770-4 true peak, Trim with LINK, OPTIONS \| HELP Settings window with a 12-section help page, corner-resizable window, OpenGL, Mid / Side gain -12 / +12 dB, complete preset menu and confirmation cards, About card with instance, sample rate and error-log export, AAX build. |

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