



Setting up and Using the US-428 with Pro Tools®

The US-428 can control Digidesign's Pro Tools software application on both the MacOS and the PC. Digidesign offers a free version, ProTools Free, that is an attractive application for use with the US-428. On the Macintosh it uses SoundManager for audio, and Windows Multimedia (MME) on the PC. You can see compatibility details and can order a free CD-ROM of Pro Tools Free at www.digidesign.com.

Note: At the time of this writing, the downloadable MacOS version (5.0.1) supports the use of remote control hardware, but the Windows version does not. The CD-ROM version of ProTools Free, however, contains control hardware support in both MacOS and Windows versions, and thus should be quite compatible with the US-428. If you have the downloaded Windows version, you can download the additional files necessary for control hardware support. As of this writing, this file is located at: <http://download.digidesign.com/support/digi/windows/pt/MIDIControllers501.zip>.

Pro Tools Free: This free software application offers eight tracks of digital audio and 48 tracks of MIDI. You can record up to two inputs simultaneously, and use the US-428 control surface to control mixing, plug-ins, automation, and more.

Before using the set-up information provided in this document, first install Pro Tools Free (and OMS if you're on a Mac) as described in the ProTools document "PT FREE Quick Start Guide.pdf" that comes with the Pro Tools Free download. Make sure that Pro Tools Free is working using your computer's built-in speaker before proceeding further. You can use the sample project provided with Pro Tools Free to test it.

To use the US-428 in this set-up, you must have version 2.00 or later of the US-428 driver installed on your system. Before using this set-up document, first read the documentation on installing the US-428 drivers.

Setting Up the US-428

Pro Tools Free can only use Sound Manager input and output on the Mac or Windows MME input and output on the PC. Note that this is not required though. For example, you can use the US-428 to control Pro Tools while sending Pro Tools' audio I/O through a different device, even the Mac's built-in sound system.

Version 2.00 and later of the US-428 driver includes special emulation software to let the US-428 act like a JL Cooper CS-10™ attached to Pro Tools. This is different than the normal CS-10 emulation mode since Pro Tools uses it in some special ways. In the US-428 control panel, select "Pro Tools® CS-10" for the control protocol.

You might need to adjust the audio latency for your system. Do this in the System tab of the US-428 control panel. Using a smaller setting will reduce the audio input to output latency through Pro Tools Free, but also increases the chance of audio drop outs. A setting of 1024 works well on many computers. If you get an error message when playing that says "You're running out of CPU power. Take out some plug-ins

to free up CPU power” then you should first try increasing your latency setting. You might also adjust your CPU usage limit under the Setups/Hardware... menu item. For advice on low-latency input monitoring, see the Input Monitoring section below.

Setting Pro Tools to use the US-428 Control Surface

Start Pro Tools and load or start a new session, then do the following:

- Under MIDI/Input Devices... make sure that “US-428 Control Port” is checked
- Choose Setups/Peripherals and select the “MIDI Controllers” button
- On line #1 select “CS-10” under “Type”
- Select “US-428 Control Port” under “Receive From” and “Send To”
- Select “8” under “# Ch’s”
- Click “OK” in the Peripherals window

To test the set-up, you should be able to move a fader or press a transport key and see that Pro Tools is responding.

How to Use the US-428 with Pro Tools

The original CS-10 has 8 faders, a row of 8 keys and LEDs above these keys, a data wheel with a button on each side of it, left/right keys, up/down keys with LEDs, transport keys, 6 potentiometer knobs, and 10 general purpose keys. The Pro Tools interface for this device maps all these controls onto Pro Tools features. Since the US-428 has a different (but similar) set of controls, the “Pro Tools CS-10” protocol emulates a CS-10 while communicating with Pro Tools.

Input Monitoring

With Pro Tools Free, you can monitor your inputs using on-screen controls, including listening to plug-in effects applied to input in real time. As an engineer, this can be quite handy, but as a performer it is less than ideal since the input to output latency (time delay from input to output signal) is tens of milliseconds long. That’s long enough to ruin your timing if you are trying to record while listening to previously recorded tracks (overdubbing).

For ultra-low latency monitoring (< 1.5msec), you can instead use the US-428’s hardware input monitoring feature. Using this technique, you won’t hear plug-in effects being applied to your inputs, but your timing will be rock solid. Here’s how to do it:

1. For record enabled tracks, assign their output to an unused bus. This way, you won’t hear Pro Tools’ high latency monitor output.
2. Push the “INPUT MONITOR” key on the US-428. Now the first 4 channel strips control the input monitor level of the 4 inputs.
3. Adjust the mute, level, and pan settings for the 4 inputs.
4. Push “INPUT MONITOR” again to exit this mode.

You can adjust your hardware input monitor settings at any time, even in the middle of a recording pass.

Modifier Keys

Modifier keys are held down to alter the action of a knob or other key. The Shift, Control, Option, Alt and/or Command keys found on your keyboard are also mapped to US-428 keys, and either the keyboard or US-428 key gives the same behavior. In the key summary on the last page, a listing like “SET+PLAY” means hold down the SET key and then press the PLAY key. This is the same as holding the keyboard SHIFT and pressing PLAY.

Transport Controls

The five transport keys on the US-428 operate exactly like the on-screen transport buttons. This includes some special behaviors. You can hold the SET key and press PLAY to play in half-speed mode. You can hold the ASGN key and press RECORD to cycle through the different record modes (Normal, Destructive, Loop, QuickPunch).

If "Audio During Fast Forward/Rewind" is not selected under Setups/Preferences.../Operation, then you can tap the REW or FFWD keys to move backward or forward in steps. (The step size depends on your selected time display mode.) Or you can hold down the REW or FFWD keys to move the time line continuously.

"Pass Through Null" Controls

In using the US-428 with Pro Tools, the physical faders and rotary control positions at times will not match their on-screen counterparts. When you move a control, like a level fader, pan control, or effect parameter knob, it will not affect the on-screen control until it has moved past the on-screen position, called the null point. The on-screen control will then stay locked to the physical control after this. Once you have stopped moving the control, it will still stay locked until the Touch Timeout time has passed. Then, once again, you have to pass through the null point to regain control. (You can adjust the Touch Timeout setting in Setups/Preferences.../Automation.)

Channel Strips

Each channel strip has controls for level, mute, solo, select, and record enable. The channel strip fader controls the corresponding on-screen level fader, but remember that you must move it through the on-screen position before it takes effect. As you start to move a fader that is not locked to its on-screen counterpart, either the HI-MID or LO-MID LED will light up to show you which direction you need to move the fader to reach the null point.

You can press the MUTE keys to mute/unmute a channel. The MUTE light displays the current MUTE state for that channel. If you press the SOLO key, the SOLO LED will light up and you are in SOLO mode. Now the MUTE keys become SOLO keys for the 8 channels, and the MUTE lights become SOLO lights. Press the SOLO key again, and you are back in MUTE mode.

Pressing a SELECT key selects a track for panning, send level, or plug-in parameter control, and deselects other tracks. Once selected, its on-screen name will be highlighted in green. Hold the SET key and press SELECT to toggle the selection of a track for editing, deleting, etc. Its on-screen track name will get a white background.

You can move to different banks of 8 channel strips by using the BANK keys (<BANK and BANK>). Pressing these will move the selection by 8 to the right or left (or as far as possible) and the MUTE and REC lights will be updated for the currently active channel strips. The currently selected track for panning, etc. will also move (and the same green LED will stay lit).

Changing Parameters

When a track is selected, you can use the four rotary knobs in different ways to control the track's pan setting, send levels, and plug-in parameters. There are different sets of parameters for a track that these four knobs can control. The "top" set includes pan, and five send levels. With a track selected, you get to its top parameter set by holding LOCATE> and pressing the HIGH key. The HIGH LED lights to show that the top set is selected.

Now you can move the PAN knob (through the null point!) to change the pan setting for the selected track. You can also change the send level for all five sends, A through E. (See the summary at the end for details.) Hold the SET button while moving a knob for finer control.

On screen you can select any plug-in and display its settings. The track for the plug-in, if it is different than the selected track, will have its name highlighted in red. Load the "4-band EQ II" plug-in in an insert. Now press the LOW button several times. As you do, a set of plug-in parameters is highlighted (up to 6 at a time for a plug-in). The set goes to the bottom then cycles back to the top. Now try turning an EQ knob back and forth. Once it moves through the parameter's null point, you can control it with the US-knob. All six plug-in parameters selected can be controlled (only 4 are used per set for this EQ). See the summary at the end for details, and for more on using plug-ins with Pro Tools, see "DigiRack Plug-Ins Guide.pdf" that came with Pro Tools.

Scrubbing and Shuttling

The data wheel on the US-428 can be used to scrub and shuttle audio in Pro Tools, and to create selections of data for editing. Here's a brief example of how to use these features to select some audio. Please refer to the CS-10 chapter of the MIDI Controller Guide (listed below) for lots of details.

This description assumes that "Edit Insertion Follows Scrub/Shuttle" is disabled under Setups/Preferences.../Operation. Press F3 to go into shuttle mode, and move the data wheel to shuttle the cursor near your desired start point. Press F2 to go into scrub mode. Scrub the audio with the data wheel to find your approximate start point. Now hold down SET and scrub towards the end point. Hey, you're creating a selection. Press <BANK to go to the start of the selection, hold down SET and F1, and scrub more finely, adjusting the exact selection start point. Press BANK> to do the same to trim the end point. Now press F2 or STOP to exit scrub mode.

You can switch between scrub and shuttle modes at any time, and can leave scrub or shuttle mode by pressing the button with the lit up LED or STOP. Note that the normal transport controls, and much else, are disabled when in scrub or shuttle mode. Again, the Pro Tools documentation has much more details about using a MIDI controller for such functions. Check it out.

Zoom/Scroll/Edit

Several key commands, listed in the Summary, exist to perform various zooming, scrolling, and editing functions.

Find Out More

More information about how Pro Tools uses external MIDI controllers, and the CS-10 in particular, can be found on Digidesign's web site. Their guide can be found at:
www.digidesign/support/docs/MIDI_Controller_Guide.pdf.

US-428 “Pro Tools”[®] CS-10” Summary

Transport

| | |
|-------------|---------------------|
| PLAY | play |
| SET+PLAY | play at half speed |
| RECORD | toggle record state |
| ASGN+RECORD | cycle record modes |
| STOP | stop |
| REW | rewind |
| FFWD | fast forward |
| SET+STOP | abort recording |
| SET+REW | go to beginning |
| SET+FFWD | go to end |

Channel Strips

| | |
|----------------------|--|
| FADER n | adjust track n level |
| SELECT n | select track n for pan, send level, parameters |
| REC+SELECT n | toggle track n rec arm |
| SET+SELECT n | toggle track n select for edit/delete/etc. |
| MUTE n | toggle track n mute |
| MUTE n (when SOLO) | toggle track n solo |
| SOLO | toggle solo/mute state |
| <BANK | bank left by 8 |
| BANK> | bank right by 8 |

Views/Locations

| | |
|--------------------|---------------------|
| SET+<BANK | zoom out horizontal |
| SET+BANK> | zoom in horizontal |
| SET+HI | zoom out vertical |
| SET+LO | zoom in vertical |
| <LOCATE+SELECT n | go to memory n |
| <LOCATE+LOCATE> | |
| +SELECT n | set memory n |
| F1+<BANK | scroll left |
| F1+BANK> | scroll right |
| F1+LOCATE>+<BANK | scroll to start |
| F1+LOCATE>+BANK> | scroll to end |
| F1+HI | scroll up |
| F1+LO | scroll down |

Modifier Keys

| | |
|---------|-------------|
| LOCATE> | option key |
| SET | shift key |
| ASGN | control key |
| F1 | command key |

Changing Parameters

| | |
|------------|------------------------------|
| LOCATE>+HI | go to first parameter set |
| HI | go to previous parameter set |
| set | |
| LO | go to next parameter set |
| LOCATE>+LO | go to last parameter set |

First parameter set (for selected track)

| | |
|--------------|--------------|
| PAN | pan |
| GAIN | send a level |
| FREQ | send b level |
| Q | send c level |
| LOCATE>+GAIN | send d level |
| LOCATE>+FREQ | send e level |

Plug-in parameter sets (for selected plug-in)

| | |
|--------------|---|
| PAN | parameter 1 |
| GAIN | parameter 2 |
| FREQ | parameter 3 |
| Q | parameter 4 |
| LOCATE>+GAIN | parameter 5 |
| LOCATE>+FREQ | parameter 6 |
| SET+(knob) | fine pan, send level, or parameter adjust |

Data Wheel

| | |
|-----------|--------------------------|
| F2 | scrub on/off |
| F3 | shuttle on/off |
| WHEEL | scrub or shuttle |
| F1+WHEEL | fine scrub or shuttle |
| SET+WHEEL | create/extend selection |
| <BANK | go to start of selection |
| BANK> | go to end of selection |
| STOP | exit scrub or shuttle |

Edit Keys

| | |
|--------|---------------------|
| AUX1 | set start point |
| AUX2 | set end point |
| AUX3 | capture region(s) |
| AUX4 | separate regions(s) |
| HI-MID | cycle edit tools |

Special LEDs

| | |
|--------|--------------------------------|
| HI-MID | move active fader up to null |
| LO-MID | move active fader down to null |

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