

# Touch Panel Guide

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## 1 Basics

Local touch or storage devices directly attached to Cynap offers versatility where IT equipment is restricted or missing.

Touch panels might be connected directly to Cynap or via USB hubs and HDMI switches to extend the range or increase the numbers of attached touch panels.

Adding a touch panel to Cynap adds convenience and direct control. Its additional functionality adds to a scenario where a remote control isn't an option.

Typical implementations of one or more touch panels are:

- Local control via moderator
- A shared touch panel for ease of use, combined with an extended USB interface to have members share their content.
- Larger number of touch panels where people gain access to Cynap from their seats

Operating a mirrored Windows PC screen with vSolution Cast's TouchBack functionality allows a seamless operation of a presentation directly from a connected touch screen or mouse. Thanks to its bi-directional input interface you gain the ability to start and manipulate your Windows located files directly on Cynap.

## 2 Annotation/Whiteboard on touch panels

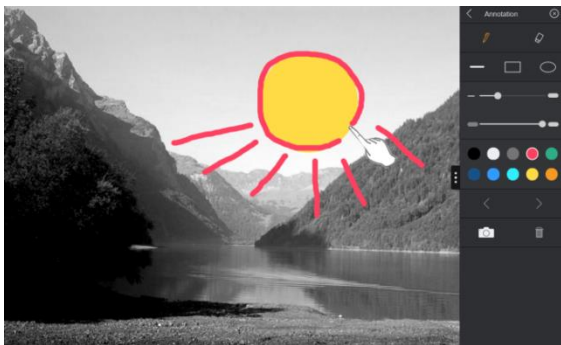


Connecting more than one touch panel on Cynap does not offer multi-user connections on Cynap.

This means that only one touch panel user at the time is allowed to draw. Instructing the users on how to use it is essential.

If users want to draw independently, we advise the installation of PCs with touch screens and let these users draw and operate Cynap via its web interface.

## 3 Single-Touch Input

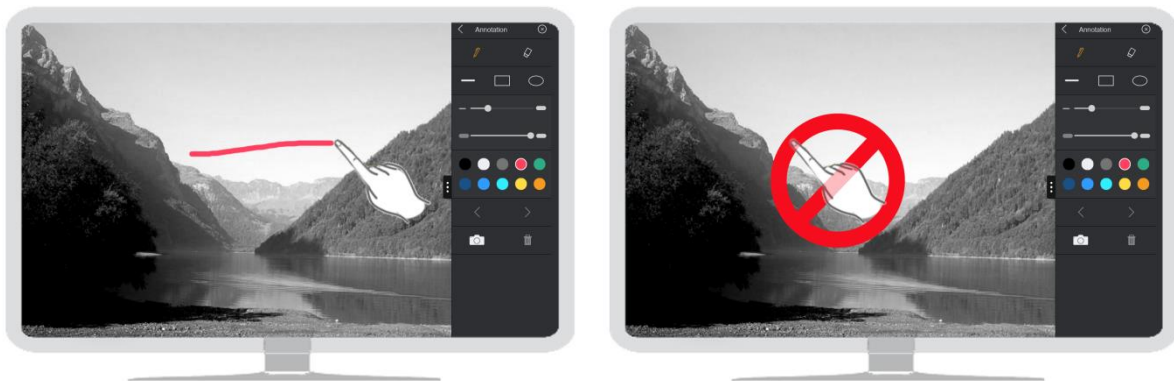


Gestures and multi-touch aren't supported which means that you can only draw by using a single finger/pen.

The moderator picks a color, and then starts drawing with a pen or finger.

Every other touch panel user either has to change the color before drawing or will use the same color as before.

## 4 Single-User session



Larger numbers of installed touch panels are all sharing the same Single-User session. This means, that users have to take turns and only one person operates Cynap via touch panel (same applies also to remote control, physical/virtual keyboard or mouse).

## 5 Bi-Directional Input “TouchBack”



*Operate on Cynap attached Touch*

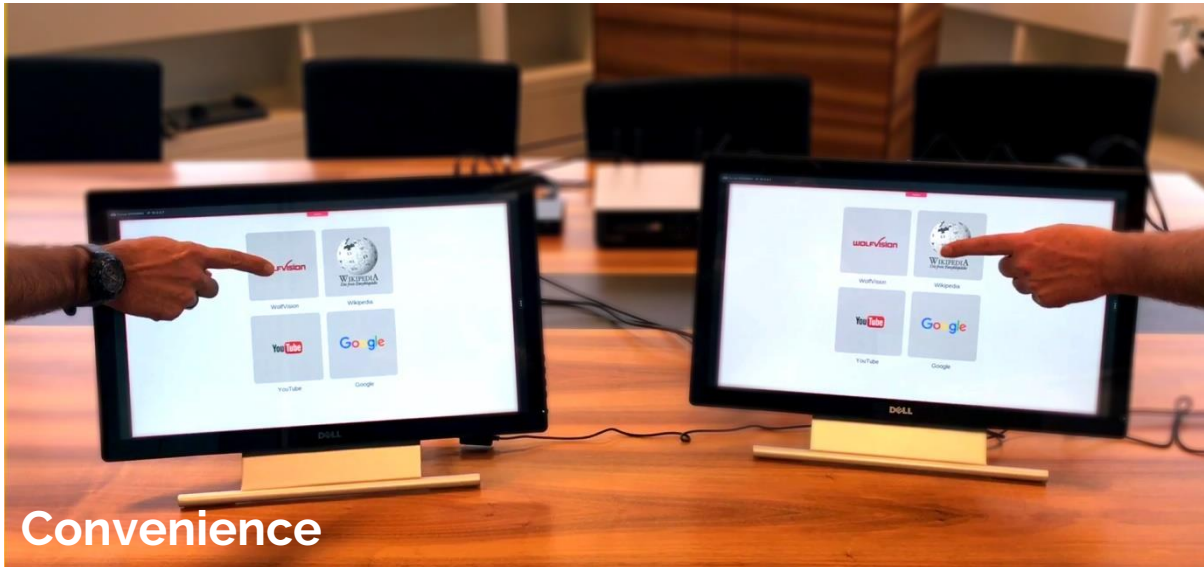


*Execution on Windows OS*

As of version 2.0 of vSolution Cast, Cynap is able to send coordinates and mouse events back to the originating Windows system. It allows a user to move freely during a presentation and approach a Cynap screen to start and manipulate the Windows desktop using a touch screen, a Cynap attached mouse or the virtual mouse on the remote.

*vSolution Cast for Windows* is supported on Windows 7 and up. The TouchBack feature requires Cynap's firmware 1.20 and up.

TouchBack does not require additional network configuration or change of Cynap settings. It is available as soon as the Windows Cynap mirroring connection starts.



## 6 Typical implementations

There are three typical implementations when it comes to Touch Panels.

- ① Simply to use a touch panel to give a moderator access via convenient interface
- ② Moderate and give moderator access to remote attached USB slot
- ③ For meetings, where a number of people are interacting with Cynap

Cynap offers local and remote access to use its functionality.

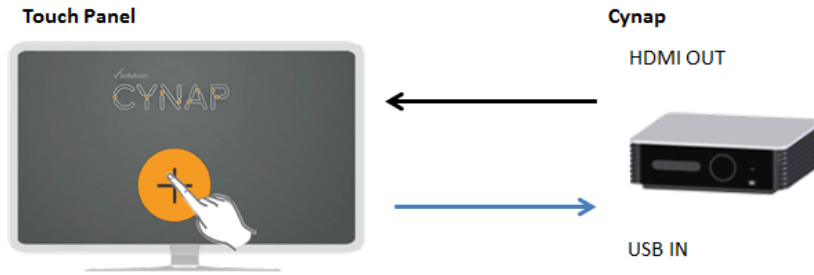
**Local access** is single-user access. This means that 2 persons on 2 touch panels will write with the same keyboard although each of them has a keyboard on the touch panel right in front of them.

Imagine operating the TV at home with your partner and both of you having a separate remote to switch channels.

**Remote access** on the other hand is handled via networking interface giving each connection a unique address. Interfering actions from a second partner are prohibited. This works like the waiter in the restaurant who remembers what you ordered and will bring it to your table.

## 1

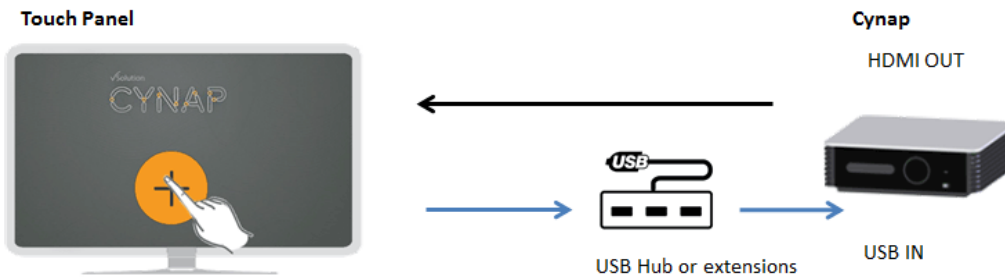
### 6.1 Setup with a one touch panel to control your Cynap.



Simply plug in the HDMI and USB cables directly into Cynap.

## 2

### 6.2 Setup with one touch panel and extended USB access for a USB storage device



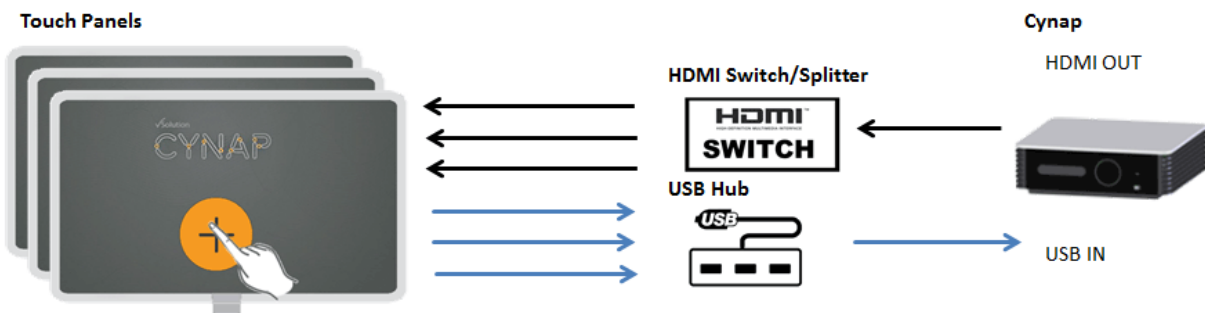
Connect Cynap and Touch Panel directly and use an amplified USB extension to increase the length of the USB connection.

Touch Screens with USB Port are able to offer File Exchange with Cynap.

Cynap only recognizes the first entered USB storage device, to use a second one you have to remove the one in use from your USB Hub or USB extension.

## 3

### 6.3 Setup with more than one touch panel



A supported variety of touch panels can be attached to Cynap when using HDMI Switches/Splitters and USB Hubs.



**Note:** Y-shaped cables that have 2 USB plugs (1 for power and data, the other for power only), Such a cable is non-standard, with the USB compliance specification stating that "use of a 'Y' cable (a cable with two A-plugs) is prohibited on any USB peripheral", meaning that "if a USB peripheral requires more power than allowed by the USB specification to which it is designed, then it must be self-powered."

Please calculate the power consumption of all your USB connected devices to decide if an unpowered USB hub suits the power budget of your devices. To be safe we recommend the use of a powered USB hub specified by your connecting devices.

When connecting multiple touch panels we recommend instructing the users on how to work within the single-user session.

USB memory devices can be inserted via USB hub or, if available, at the touch panel.

Cynap only recognizes the first entered USB memory device, to use a second one you have to remove the one in use.

Based on the parallel connection of the touch panels, the users of these touch panels are doing everything on the same interface (e.g. closing a window will close the window for all touch panel users or selecting a color in Annotation will change the color for every touch panel user).

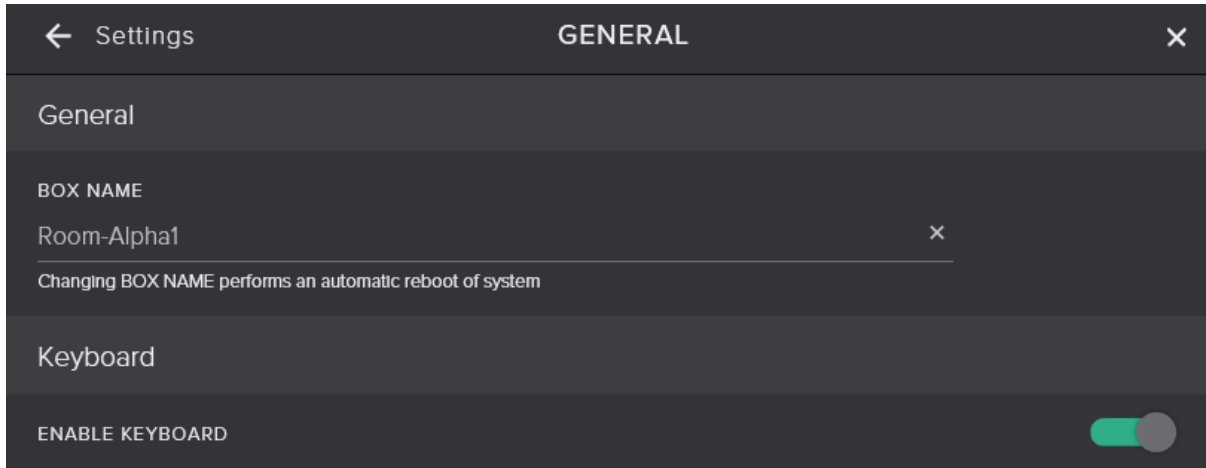
## 7 Cynap Touch Functionality

Operation	Through Hub	First Touch	Second+ Touch
Files on Memory Stick	Works	Works (if available)	Works (if available)
Basic Operation	Works	Works	Works
Annotation	Yes	Yes	Single-User Session
Whiteboard	Yes	Yes	Single-User Session

## 8 Configuration

### 8.1 On Screen Keyboard

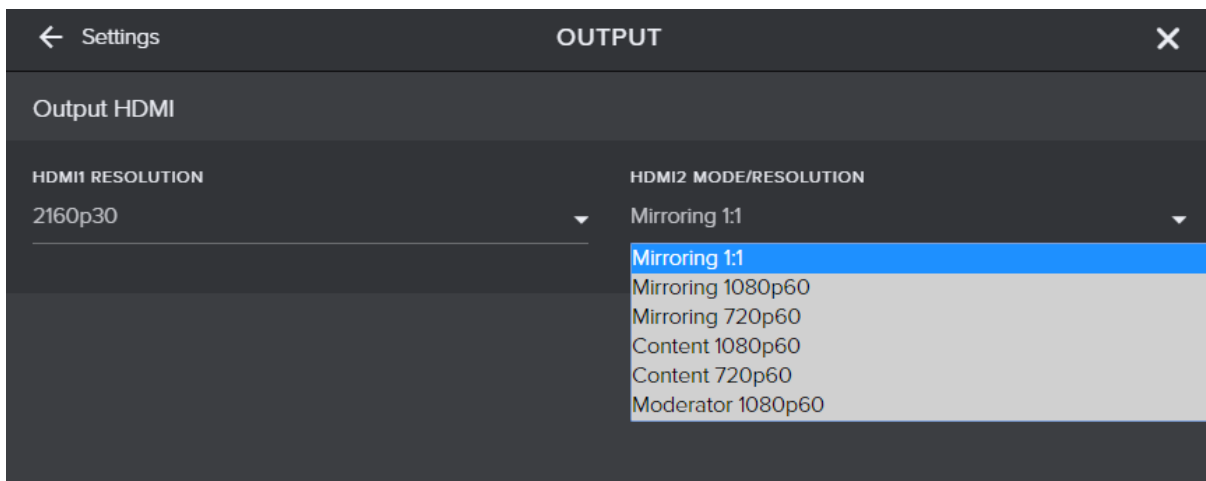
Activate Keyboard to apply a keyboard to your touch panel.



### 8.2 HDMI IN

If not already set, switch HDMI2 Mode/Resolution to Mirroring 1:1

**Note: If set to Content or Moderator mode, the keyboard on the touch panel (connected to HDMI 2 Out) will not be shown.**



## 9 Touch Panel Requirements

Recommended screen size 4.2 inch and up and a resolution of 852 by 480 pixels (16:9).



## 10 HDMI input and output

Name	Intended Use
HDMI1 In	Visualizer
HDMI1 Out	Main Screen
HDMI 2 In	3 <sup>rd</sup> Party devices such as webcam/laptop/Blu-ray Player/etc.
HDMI 2 Out	Touch Panel(s)

## 11 Cynaps USB specifications



Please be aware of the USB controllers' endpoint management or power budget.

Cynap's USB controller offers 68 endpoints for custom use. This number is being calculated from the mainboards USB controllers' total number of 96 endpoints minus 28 endpoints from Cynap's use.

In general a touch panel or a USB3 device requires at least 4 endpoints.

### 11.1 Number of endpoints

To determine the number of maximum connected touch panels you will need to know the total amount of endpoints of your touch panel.

#### List of typical touch panels and their use of USB endpoints.

Device	Endpoints (EP's) used/device
NEC MultiSync E232WMT (4EP touch, 2EP USB hub, 16EP camera)	22 EP's
Dell P2314T (4EP touch, 3 EP USB hub)	7 EP's
Dell S2240T (4EP touch)	4 EP's
Acer T272HL (4EP touch, 1EP USB hub)	5 EP's

You might be able to connect a maximum of 17 Dell S2240Ts (17 x 4 EP's) to Cynap but you won't be able to add additional USB devices such as a portable memory device or a USB Webcam for WebRTC.

### 11.2 USB power specifications of Cynap

Specification	Voltage	Current	Power
1 x USB 2.0 (High-power device)	5 V	500 mA	2,5 W
4 x USB 3.0 (High-power SuperSpeed device)	5 V	900 mA	4,5 W

## 12 Glossary

Term	Description
Content	Outputs released content on HDMI2
HDMI	High Definition Media Interface, standardized interface to digitally transmit picture and sound
mA	Milliampere, electromagnetic unit
Mirroring	Outputs an exact copy of HDMI1 on HDMI2
Multi-Touch	Multiple parallel interactions possible, e.g. drawing with 3 fingers at the same time
Single-Touch	Only one interaction per touch – similar to left click on mouse device
Single-User Session	All users share the same space. If user 1 draws on whiteboard, user 2 on different touch panel will continue with same colour. If user 2 clicks on undo, he will undo, what user 1 did draw before
USB	Universal Serial bus, serial bus system to connect computer and peripherals
USB Endpoint	An endpoint is a buffer on a USB device. Endpoint is a term that relates to the hardware itself, independent of the host operating system. The host can send and receive data to or from that buffer. Endpoints can be categorized into control and data endpoints.
Y-shaped USB cable	A dual-input USB cable, one input of which is used for power and data transfer, the other solely for power, which makes the device a non-standard USB device.

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Ver 1.0	Initial release	19.8.2016/rg
Ver 1.1	Clarification on Cynap's USB capacity	29.8.2016/rg
Ver. 1.2	Added Y-shaped non-standard USB cable, power specs and adapted new HDMI2 modes	2.11.2016/rg
Ver. 1.3	Added vSolutionCast 2.0 with TouchBack functionality	01.2.2018/rg