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Professional Display Solutions

Making PeopleCount

Safe social distancing in public settings



Currently 10 people in store Maximum capacity: 10



Maximum capacity: 10
Please wait...

you are next

For more details visit wy



PPDS PeopleCount Webinar

Mark Laramie PPDS May 2020







Making People Count

People count with Philips Professional Display Solutions:

At Philips PDS we are leveraging our global partnerships to adapt to the new normal with intelligent solutions for safer social distancing in public areas.





Agenda

- <u>Introduction</u>
- <u>Capabilities Update</u>
- <u>Requirements</u>
- <u>Demo</u>
- <u>Content options</u>
- <u>Graphics considerations</u>
- <u>Technical Discussions</u>





Introduction



Most powerful SoC solution **in the market**

Philips is a company with a rich heritage of innovation, and in keeping with that tradition, has launched the most powerful system-on-chip (SoC) displays available today. SoC is essentially a media player embedded inside the display at the board level, which reduces the cost and complexity compared to a traditional digital signage installation. Since an external media player and the associated cables are eliminated it means installations are quicker to perform and the back of the display is no longer cluttered. It also reduces the number of electrical outlets that are required, making for a more professional looking installation.

SoC is fast becoming the most popular method of deploying a digital signage display, although, most display manufacturers experience a significant drop in multimedia performance when their proprietary SoC engines are used. That's not the case with Philips. Our SoC displays are powered by Android, and when combined with a native Android digital signage application we provide unprecedented performance. That's because native Android applications are able to diractily tap into the power of the graphics processor in our displays which drives complex multimedia output. This means you don't need to compromise performance, and still get to enjoy major cost savings.

Quite simply, not all SoC displays are created equal.

People Counting Solution

Philips Display with Android SoC

combined with

Bosch People Counting Camera





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SoC benefits

Low Cost

Clutter-free

Open Architecture

Easier to Deploy

Higher reliability

Simplified Topology

Philips lets you simplify your digital signage deployments while reducing the total solution cost.





People Counting Solution

- Limit the total number of customers in store in order to:
 - ensure that there sufficient space for customers to be able to maintain social distancing
 - to protect both the customers and the staff

On digital screens facing outside the store, to coordinate queuing customers.

- Can be a stand alone solution (no internet connectivity needed)
 - Keep customers waiting to enter informed with visual alerts, warning when occupancy limits are reached or when it is safe to enter.















Capability update:

 The PeopleCount solution is now capable of handling multiple doorways!



The USB drive stays connected to the display, content (Jpeg/MP4) and configuration file must be stored in the root folder



Content examples – Three options



1. PeCo 100





exceed the limits.

- Only 2 images possible Stop / Go.
- The images are Full screen.
- Which image is currently displayed depends on how many people have entered the premises.

Content examples – Three options

PeCo 50/50 2a. PeCo 50/50 (vertical)





- Half of the image is a slide show of images from the thumbdrive.
- The other half of the image is the Stop / Go indication.
- Which Stop / Go indication is currently displayed depends on how many people have entered the premises.

2b. PeCo 50/50 Horizontal







Content examples – Three options

3. Traffic Light Red/Yellow/Green





- On the left you can see two sample pictures (content). These can be stored on the USB drive and played on the display.
- The background images are Full screen. A 'black rectangle' has been added, acting as part of the Traffic Light animation.
- The 'Green' 'Yellow' and 'Red' signals are generated by the installed application and the traffic light shown depends on how many people are inside the premises.





Graphics considerations



Content examples: PeCo 50/50





- The slideshow images are actually full screen images
- The top half notification content is a layer on top of the slideshow image.

Content examples: PeCo 50/50





 A transparent background for the notification content lets the full screen background show...

Content examples – PeCo 100







 Having Fun! Using transparent background for the notification content



Content examples – PeCo 100

Pet Store







Content examples – PeCo 100

Casino







Content examples: PeCo 50/50 Horizontal on Prosumer Series Monitors





Required devices



Minimum required devices

- One Philips Display from **D** or **Q** line (compatibility list)
- One Bosch i series Bosch camera (compatibility list)
- One PoE enabled router (or a normal router and a PoE injector)
- One USB drive (minimum 2GB)
- One bracket for the display (depending on installation scenario)
- APK and configuration files (download HERE)







or



PoE injector



Philips Q-Line, D-Line or H-Line with OPS Bosch People Counting Camera

PoE router

Router



Compatibility List

Philips Professional Displays

(Android 5.0 or higher)

- xxBDL3050Q (50Q-Line)
- xxBDL4051D (FHD D-Line)
- xxBDL4150D (UHD D-Line)
- xxBDL505xP (P-Line)
- CRD50 (OPS module)



Bosch Cameras

(All below cameras with Firmware 7.61.0023 or later)

- Bosch cameras supporting EVA (Essential Video Analytics)
 - 3000i series (Microdome, Turret, Flexidome)
 - 4000i series (Flexidome, Autodome)
 - 5000i series (Flexidome)
 - 6000(i) series (Flexidome, Panoramic)
- Bosch cameras supporting IVA (Intelligent Video Analytics)
 - 7000(i) series (Flexidome, Autodome, Panoramic)
 - 8000i series (Flexidome)



Installation flow



- Connect the Display and the Camera to the (PoE) Router
 - Connectivity to a router is needed for the devices to obtain an IP address and enable network message exchange. There is no need for an open internet connection.
- Install the Philips People Count App on the Display's SoC
 - Follow the installation guide to have the app always launched as the Display starts up.
 - The application will detect and process the enter / exit events converting them into the traffic light signal.
- Complete the camera settings
 - Follow the guide to easily store the IP address of the display, the VCA-, and the Alarm task editor script in the camera.
 Only the "Line entrance/exit drawing" must be done with the help of the UI (a laptop, connected to the router, is required for this operation).
 The VCA- and Alarm task editor script are provided as .txt files.
- Copy the pictures / videos onto the root of a USB stick and also the .JSON file, put in in the Display
 - In the configuration file, the maximum number of people allowed in the store can be set. When this is reached, a content asking to wait will be displayed.
 Below the allowed number of people a welcoming content will be displayed. In the background the pictures / movies will be played in alphabetical order.

Result









Installation diagram (option 1)





The USB drive stays connected to the display, content (Jpeg/MP4) and configuration file must be stored in the root folder



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The USB drive stays connected to the display, content (Jpeg/MP4) and configuration file must be stored in the root folder



Bosch Security Cameras





Questions?





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System configuration



App configuration – Step 1



- 1. On the control, press in sequence **Info + 7 + 7** to open the display info page.
- 2. Note the IP address of the display, it will be needed later for the **Camera Setup**.

2020/04/28 17: GMT+02:
18:65:71:7e:2f:81
c0:d2:f3:48:3e:72
N/A
N/A
192.168.0.150 Ethernet
DHCP
255.255.255.0
192.168.0.1
FB04.03T_AutoCA02
V1.010
v2.04
1
1
24BDI 4151T
2400241311
AU0A1845001860

USB configuration



🧵 ар	p	30/04/2020 21:48	File folder	
*	1920x1080.jpg	30/04/2020 21:51	IrfanView JPG File	235 KB
*	1920x1080-2.jpg	30/04/2020 21:51	IrfanView JPG File	311 KB
*	1920x1080-3.jpg	30/04/2020 21:53	IrfanView JPG File	249 KB
a) set	ttings.json	30/04/2020 21:23	JSON File	1 KB

1. To choose the **Notification Content** to be displayed, modify the Setup.json file as follow

```
- {
- "red": 3,
- "green-image": "app/green.jpg",
- "red-image": "app/red.png"
```

- }
- 2. Note that both .jpg and .png files are supported
- 3. Change the number in red to match the maximum number of people allowed on the premises at the same time.
- 4. "app/green.jpeg" is referring to the "Notification content" (pictures named Green.jpeg and Red.png) in the USB disk folder named "App".



App installation





App installation

There are 4 things we need to accomplish

- 1. Install the apk
- 2. Set the PeopleCount app as the "Custom" App
- 3. Set the Boot-on source to "Custom"
- 4. Set the Power save mode





- 1. Copy in the desired apk to the root of the USB drive the content of the PeCo folder and the content you need to reproduce
- Open the admin menu: press in sequence home 1888 on the remote control (within 2 seconds)



1. Select Apps.



2. Select File Manager.





1. Select USB disk.





1. Select the PeCo 50-50.apk file and open it.

U	ISB USB DISK		
	.volid 45 B		
	bootanimation.zip 288.3 MB		
	me.bluemail.mail_1.9.4.10-12743.com.apk ^{43.05 мв}	0.505	
	PHL_43BDL4050D_0085_V104T1_180907.7z ^{755.54 KB}	Delete	
		Сору	
F	Pixel test.exe	Move	
	91 KB	Select	
	PL2303_64bit_Installer.exe	Select All	
	TeamViewerHost.apk ^{13.89 MB}		
	TeamViewerQSAddon_tpvision2k18_v2_signed.	apk	
	update.zip ^{381.36 MB}		



- 1. Follow the instructions and press the **install** button on the bottom right of the screen, the APK will be installed. Click on **Ready**.
- 2. We will now assign your installed APK to the "custom" source selection.
- 3. Hit the back button until the file manager is closed and you are back to screen in the picture below.
- 4. Select Settings.





Set App as "Custom" – Step 1

1. Select Signage Display.



Set App as "Custom" – Step 2



- 1. Select Source Settings.
- 2. Select **Custom App**, then **Select App**.

Signage Display
General settings
Server settings
Source settings
Network application
System tools
Misc.
System updates
Scaler FW updates

Source settings	Custom app
Media Player	Select app
Browser	CMND&Depk
CMND & Play	Force resta
PDF Player	Disable
Custom App	



Set App as "Custom" – Step 3

1. Select **PeopleCount** and click on **Save**.



Set Boot-on source as "Custom"



- 1. Press the **Home** shaped button on the remote control to open the scaler menu.
- 2. Navigate to **Configuration 1**.
- 3. Select **Boot on source**.
- 4. Set the input value on **Custom** and press **ok**.
- 5. Close the tab pressing the **back button**.

Dicture	Switch on state	•	Last status	
Picture	Panel Saving	•	Action	
Caraan	RS232 routing	•	RS232	
Screen	Boot on source		Action	
Audio	WOL	•	Off	
	DDC/CI		0n	
010	Light senso Boot on	source		
PIP	Human sen	Input	< custo	M +
Configuration 1	Power LED I	Plaviest	•	•
	Configuratio			
*				



- 1. Press the **Home** shaped button on the remote control to open the scaler menu.
- 2. Navigate to Advanced Option.
- 3. Select **Power Save**.
- 4. Set the value on **Mode 4** and press **OK**.

	Power save		
	Auto signal detection	•	Action
	HDMI with One Wire	•	110
	Schedule	•	Action
	Date and time	•	Action
	Off timer	•	Off
	Tilling	·4.*	Action
Advanced option	Keyboard control	•	Action
	IR control	•	Action
Configuration 2	Input resolution	•	Auto

App installation – Complete

PeopleCount will now start up each time the display is powered on.

If you close the app, you can open it again with the remote control by selecting source input "custom".

HDMI1 HDMI2 DVI-D VGA Media Player Browser CMND & Play **PDF Player** Custom



Camera setup



Camera setup - overview



 There are a few steps to setup the Bosch camera for the People Count solution, please refer to the Application Note in the download package for a detailed guide.



A multi Camera to multi Monitor routing solution for counting People on the move

Camera setup – Alarm Task Script



- //Alarm Taks Script
- //Define an http entry event message to be sent to the Philips Monitor. Please change to below IP number to match the Philips Monitor IP number
- HttpCommand sendHttpIn:={ Command("add") SSL(false) Port(7888)IP("192.168.1.179") Name("add")};
- //Define an http exit event message to be sent to the Philips Monitor. Please change to below IP number to match the Philips Monitor IP number
- HttpCommand sendHttpOut:={ Command("minus") SSL(false) Port(7888)IP("192.168.1.179") Name("minus")};
- //Send and entry Event triggered via IVA Rule 1
- if(VCARule(1,1)) then sendHttpIn;
- //Send and exit Event triggered via IVA Rule 2
- if(VCARule(1,2)) then sendHttpOut;

Camera setup – VCA Task Script



- Resolution := { Min(-1, -1) Max(1, 1) };
- Line #1 := { Point(-0.175, -0.978) Point(-0.175, 0.967) DebounceTime(0) Direction(1) };
- Line #2 := { Point(-0.131, -0.989) Point(-0.131, 0.978) DebounceTime(0) Direction(2) };
- //@Task T:0 V:0 I:1 "PeCo" {
- Event#32:={CrossedLine#1}; // entry event
- Event#31:={CrossedLine#2}; // exit event
- //FOR CAMERA DISPLAYING COUNTING VALUES IN THE PICTURE
- //external Counter#1 := { Event#32 Text("IN:") TopLeft(-0.95,-0.95)};
- //external Counter#2 := { Event#31 Text("OUT:") TopLeft(-0.95,-0.80)};
- //external Counter#3 :={ (Counter#1-Counter#2) Text("InShop:")TopLeft(-0.95,-0.65)};
- //external Event#4 :={ Event#32 where Counter#3 within(2,*)};// Rule 4 alarm when more than 2 people are in the shop.JN.
- //external Event#5 :={Event#31 where Counter #3 within(0,3)};//Rule 5 alarm when less than 3 people are in the shop.
- // FOR PEOPLE COUNTING in PeCo Solution
- external Event#1 :={CrossedLine#1}; // send Rule 1, entry event to Monitor
- external Event#2 :={CrossedLine#2}; // send Rule 2, exit event to Monitor
- //
- //@}

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Camera setup – VCA Task Script

 The VCA Task Script will create the entry and exit lines. You use the mouse to position these on the shop floor for detection of entry and exit traffic.





Additional Info



Reading and editing the counter manually



- 1. Pressing the **'info'** button on the remote control will display the current counter as a message in the bottom centre of the screen.
- 2. The current number can be modified by pressing the **'UP'** and **'Down'** keys on the remote control.
- 3. Good reasons for such corrections could be undetectable counts like:
 - People tailgating/sabotaging.
 - Personnel leaving/entering via fire exit etc.
 - Rare false counts because of poor light conditions/reflections etc.
 - Shopping carts seen as persons.

App Versions – 50/50 or 100



- 1. With this version you can trigger the 'Notification Content' using the trigger from the camera.
- 2. The **Customer Content** will be reproduced in a loop (press **option** on the remote control to adjust the loop-time)
- 3. Copy the Notification Content in the 'app' folder, the Customer Content stays in the root folder

App 50/50	App 100	Explanation PeCo 50-50				Example:
Notification Content		USB map settings for 50/50 App wh playing in a loop. Because the Notif content the resolution of this image The H&M content which is played in the bottom part is visible!! (See also	Notification content currenity in the folder "App" which can easily be replaced by another picture Jpeg or PNG			
	Notification Content	app ** USM 1020:1000 inc.	30/04/2020 21:48	File folder	225 1/1	
		* H&M 1920x1080.jpg	30/04/2020 21:51	IrfanView JPG File	235 KB 311 KB	U bent van harte welkom!
Customer Content		🌺 H&M 1920x1080-3.jpg	30/04/2020 21:53	IrfanView JPG File	249 KB	
		settings.json	30/04/2020 21:23	JSON File	1 KB	STOP
Example above is Vertical (pivot mo	de) but can also be Horizontal					Een ogenblik geduld graag!

Wiring example

In this example installation the camera is mounted on the ceiling and the POE Router is also placed in the ceiling.

Note: from the POE Router two Cat5 cables are going to the monitor. One will be connected to the Monitor, the other one is used to connect your laptop for Camera calibration and service (e.g. camera firmware update)

The USB stick is needed for the storage of your content and also the .JSON file must be on the USB stick. In the .JSON file you set the parameters for maximum number of people allowed in the store before the "Stop" notification appears.





Different Scenario setup



- It is possible to expand the number of monitors or cameras to match the needs of bigger projects.
- Currently the maximum number of devices in a single setup is 80 cameras and 20 displays.
- Each camera is capable of detecting Entry and Exit events and forward these events multiple displays.
- For a detailed description on how to configure the scripts of the PeCo cameras to handle multiple displays, please refer to the **Appendix B** in the **Application Note**.

Disclaimer



Nor Philips or Bosch will accept any liability or implementing nor using scripts mentioned in this document. Any activity in developing products that interface with Bosch and/or Philips products is at your own risk and responsibility regarding fitness for use, completeness, faultlessness, or any claims of third parties which may arise based on such development.

